List of Exhibits No Date

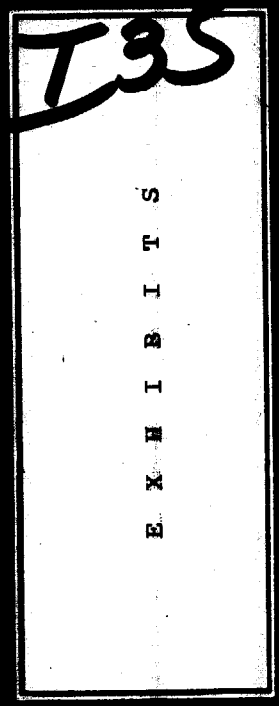

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Exhibit 1--Abbreviations and Definitions

FEMA -- Flavor and Extract Manufacturers' Association (conducted survey on flavoring ingredients and adjuncts).

NACGM -- National Association of Chewing Gum Manufacturers (conducted subsurvey on the use of flavoring ingredients, flavoring adjuncts, and other substances in chewing gum).

NCSEF -- National Confectioners Scientific and Educational Foundation (conducted subsurvey on the use of flavoring ingredients and adjuncts in highly flavored candy).

MRCA -- Market Research Corporation of America (from whom data on frequency of eating of foods were obtained).

USDA -- U.S. Department of Agriculture (supplied computer tape from which data on mean portion size of foods were obtained).

User firm -- A respondent in the NAS survey who uses the GRAS substance in preparing a blend, premix, or subassembly for sale, or who adds the substance directly to foods or uses it in food processing; any respondent in the FEMA survey who reported annual poundage data; all respondents in the subsurveys on chewing gum and highly flavored candy.

Regular food -- Any commercial food product that is prepared for human consumption but is not prepared specifically for consumption by infants.

Infant formula product and baby food -- Any commercial food product prepared specifically for consumption by infants.

Consumption -- As used in this report, applies to the consumption of foods, not GRAS substances.

Intake -- As used in this report, applies to the estimated amount of a GRAS substance that may be ingested daily through consumption of foods to which the substance has been added.

EXHIBIT 2

NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY OF SCIENCES NATIONAL ACADEMY OF ENGINEERING

2101 CONSTITUTION AVENUE WASHINGTON, D.C. 20418

FOOD PROTECTION COMMITTEE
OF THE FOOD AND NUTRITION BOARD

July , 1971

President Nixon, in his consumer message in 1969, directed the Department of Health, Education, and Welfare to reevaluate the safety of substances generally recognized as safe (GRAS) for use in food. After considerable discussion of various alternatives, the Food and Drug Administration contracted with the National Academy of Sciences--National Research Council to aid it in devising and testing a procedure for this reevaluation. An advisory committee, administered by the Food Protection Committee of the Food and Nutrition Board, was appointed for this purpose, and a pilot survey was conducted during the period April-December 1970. The product of that effort--a tested questionnaire for eliciting necessary usage data on the GRAS substances--was submitted to FDA in December 1970, along with a recommended procedure whereby remaining data that would be needed for a full-scale evaluation of GRAS substances might be obtained.

The Food and Drug Administration has now requested that the Academy undertake the comprehensive survey, implementing the questionnaire and methodologies developed in the pilot survey. Your firm, among many others, has been included as one of the participants in the comprehensive survey. Your participation in this project will help to provide needed information on the extent of use and safety of the substances now generally recognized as safe.

No information concerning the individual responses and their identification with firms will be released. Data received concerning ingredient usage and annual poundage will be used only in overall tabulations in which individual responses and their identification with firms will be completely merged and lost. Confidentiality of replies is protected by use of precoded forms which are identified only by randomly assigned code numbers. Further information concerning confidentiality of replies as well as complete background information are contained in the General Information section (printed on blue paper) in the enclosed packet of survey materials.

It is suggested that you transmit the survey packet without delay to the person in your firm who will have the responsibility of completing the questionnaires. All of the survey materials, and especially the Survey Instructions, should be reviewed thoroughly before any attempt is made to respond. Your cooperation in observing the deadlines for returning the completed questionnaires (see page 6 in the General Information section) is earnestly requested.

In contacting the firms selected to participate in this survey, a single packet is sent to the chief executive officer of the firm or person responsible for food processing in firms also producing non-food products. To obtain coverage of all food processing operations and to avoid duplicate reporting, it is hoped that one person will coordinate reporting from all divisions and subsidiaries of your firm. We will not contact divisions and subsidiaries of your firm unless you request it.

Your cooperation in this project will be exceedingly valuable to the Academy and to the Food and Drug Administration, and we certainly believe to the consuming public. We believe that you also will benefit from the results of this study.

Sincerely,

L. J. Filer, Jr., M.D., Chairman,
Subcommittee on Review of
the GRAS List -- Phase II

Enclosures

EXHIBIT 3

RETURN RECEIPT

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

C O N F I D E N T I A L

This is to confirm that the respondent, whose company code number is _____, has received the set of GRAS survey materials. It is expected that the person in this firm who will be assigned responsibility for completing the questionnaire - and whom the GRAS Review Office may contact in the event of questions - is:

Name: _____

Address: _____

_____

_____

Telephone: _____ Date: _____

* * * * *

Please return this form at once in the special envelope marked "Confidential" which is attached. If the envelope is lost or for some other reason cannot be used, return the form in a plain envelope marked "Confidential" to the address given below:

Food Protection Committee
GRAS Review Office
National Academy of Sciences--
National Research Council
2101 Constitution Avenue, N. W.
Washington, DC 20418

EXHIBIT 4

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

G E N E R A L I N F O R M A T I O N

SCOPE OF NAS-NRC SURVEY AND FDA REVIEW

This NAS-NRC survey is an essential part of a general review by the Food and Drug Administration of all substances generally recognized as safe (GRAS) for their intended use in foods. Included in the review are substances in the following categories:

(1) Substances listed in Code of Federal Regulations Title 21, §121.101 (Subpart B), except paragraphs (f), (h), and (i). Note--Substances (other than flavoring agents) comprising the bulk of the published GRAS list, i.e., those included in §121.101, paragraph (d), are listed in Appendix A, Part I; substances in paragraphs (e) and (g), i.e., flavoring agents, are covered by Category 3 below.

(2) Substances covered by "prior sanction" issued before the effective date of the Food Additives Amendment under the authority of the Federal Food, Drug, and Cosmetic Act; the Poultry Products Act (21 U. S. C. 451 and the following); or the Meat Inspection Act of March 4, 1907 (34 Stat. 1260), as amended and extended (21 U. S. C. 71 and the following).

(3) *Substances published as materials generally recognized as safe by the Flavor and Extract Manufacturers' Association.

(4) Substances considered to be generally recognized as safe on the basis of independent judgment or the action of other organizations.

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*Although they will be included in the overall review, practically all flavoring ingredients and a few substances used in close conjunction with flavoring ingredients are excluded from the NAS-NRC survey since they are covered in a separate survey being conducted by the Flavor and Extract Manufacturers' Association and, in collaboration with them, by the National Association of Chewing Gum Manufacturers and the National Confectioners Association. The joint results of their efforts and the data so obtained will be tabulated and incorporated in the final overall report to FDA.

(5) Substances covered by "no objection" letters received since the Food Additives Amendment became effective.

The NAS-NRC survey and the overall review of GRAS substances do not include indirect additives, nor do they include any of the substances now under regulation (i.e., CFR Title 21, Subpart D) except in those few cases in which a particular substance is also included in the published GRAS list in CFR Title 21, §121.101, Subpart B.

Only those vitamin and mineral supplements that are added to food products are to be reported in this survey; do not report usage of such nutrient supplements when they are incorporated in tablets or other dosage forms or other non-food items.

The use of substances in animal feeds and pet foods is not covered in this survey and should not be reported.

With few exceptions (e.g., caramel), the use of substances as food colors is not included in this survey and should not be reported. Therefore, do not report on food colors covered by the Color Additives Amendment unless they are also included in the published GRAS list in CFR Title 21, §121.101, Subpart B.

SURVEY MATERIALS

In addition to this set of General Information and the covering letter, the packet of survey materials sent to you includes the following:

- Return Receipt (buff paper) -- This single-page form is to be completed and returned to the GRAS Review Office upon receipt of the packet of survey materials in the Return Envelope (marked "Confidential") provided.

- *Survey Instructions (yellow paper) -- This is a twelve-page set of instructions explaining in detail the manner in which the questionnaire forms should be completed.

- *Questionnaire Form (white paper) -- Only one copy of the six-page form (designed and precoded for automatic data processing) is being sent to each respondent, who is requested to make as many photocopies as required for the number of substances to be reported. A separate questionnaire form is to be used for each substance to be reported. Additional copies of the forms may be obtained from the Food Protection Committee GRAS Review Office (see address on page 5). Question 8, which is the crux of the whole survey, is designed to obtain quantitative data on the usual and maximum levels of the substance introduced into each food category, for each technical effect for which the substance is used.

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*Special survey materials are to be used for reporting on GRAS substances used in baby and infant foods. Do not use Survey Instructions, Questionnaire Form, or Appendix B for this purpose unless they are stamped "BABY FOODS." The set of special survey materials may be obtained from the GRAS Review Office (see address on page 5).

- Appendix A (green paper) -- Part I of this appendix is an alphabetical listing of the GRAS substances included in CFR Title 21, §121.101 (Subpart B), paragraph (d); Part II is a listing of additional substances presumed to be GRAS by FDA but not published.

- *Appendix B (gold paper) -- This is an expanded list of the food category groups used in Question 8. This list should be consulted to determine in which of the food categories, preprinted on Questionnaire pages 3-6, the substance is used to produce a particular technical effect.

- Appendix C (gray paper) -- This is a listing of technical effect groups that have been precoded for use in Question 8.

- Sample Questionnaire (pink paper) -- This completed questionnaire form is a sample of what might be considered to be a typical response using hypothetical examples. It is an illustration of the style that should be followed in completing your individual questionnaire forms.

Extra copies of the questionnaire forms and other color-coded survey materials (instructions, appendices, etc.) may be obtained from the GRAS Review Office upon request (see address page 5).

REPORTING ON SUBSTANCES NOT LISTED IN APPENDIX A

Respondents are urged to complete questionnaires not only for those substances listed in Appendix A, but also for any other substances falling in categories (2), (4), and (5) as listed on page 1 herein. Therefore, if you are using any substance as a directly added ingredient, even though it is not listed in Appendix A, for any purpose (other than as a flavoring ingredient or adjunct) not explicitly covered by a food additive regulation, please complete a questionnaire for each substance.

You need not report any processing or storage aids that do not become in any way a part of the finished food. Substances that are completely removed in processing (volatilized, leached, filtered-out, or essentially reclaimed), or which leave wholly insignificant traces in foods, are not considered part of the food composition. For example, enzymes that are not inactivated during processing should be reported; nitrogen gas used as an inert packaging medium should not be reported, nor should filter aids that are completely removed from the final food product.

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*See footnote, page 2.

REPORTING ON BLENDS, PREMIXES, and SUBASSEMBLIES

Although questionnaires are not to be completed for mixtures such as blends, premixes, and subassemblies, respondents are asked to complete questionnaires on the individual components of such mixtures. Manufacturers and users of the mixtures are asked to report on different aspects of their involvement with the mixtures, as explained in detail in the Survey Instructions. The ability of a firm to answer each question about a particular substance will depend upon that firm's role in the manufacturing or use of the mixture of which the substance is a component.

CONFIDENTIALITY OF RETURNED QUESTIONNAIRES

Questionnaires returned by respondents in the NAS-NRC GRAS Survey are not subject to the "Freedom of Information Act." With respect to fulfilling its advisory relationship with agencies and departments of the Federal Government, the Council of the National Academy of Sciences has affirmed, upon legal counsel, that all correspondence, files, records, reports, etc. pertaining to the Academy's advisory activities are considered privileged and private and are not necessarily open to the sponsoring agency or to the public unless specifically identified and required by the contract or grant (which is not the case for the GRAS survey as indicated in the paragraph below).

Individual questionnaires returned by respondents will be retained by the Academy and may not be inspected by the FDA or any other government agency or by the public. Only computer printouts of summary data from all questionnaires submitted on any substance will be included in the Academy's final report to the FDA. Thus, the individual responses and their identification with firms will be completely merged and lost. It should be noted, however, that any attachments submitted by respondents along with the questionnaires, such as bibliographies, unpublished safety studies, outlines of manufacturing processes, etc., will be turned over to FDA with the final report. You are urged to remove all company identification from any attachments if you do not want your firm identified with the reports.

Confidentiality of replies is protected by the use of precoded forms that are identified only by randomly assigned company code numbers. The key to the code will be accessible only to the Food Protection Committee staff officers conducting the survey and will be used only when necessary to recheck with a respondent firm concerning accuracy, intelligibility, or completeness of the information provided.

You are requested to write your firm's company code number as well as the substance number on the first page of all attachments. Company code numbers will be removed or deleted by the GRAS Review Office before attachments are submitted to the FDA. No attempt will be made, however, to remove company names or any other identification not deleted by the respondents.

USE OF QUESTIONNAIRE DATA

The data on usage levels and annual poundage will be keypunched and processed by computer to produce summary printouts on each substance, including the following information:

- Usual and maximum usage levels, by technical effect, within each food category. Mean or median values, plus an indication of the extremes of the ranges reported, will be calculated for each substance.

- Total annual poundage reported for 1960 and for 1970 for each substance from all respondents. Annual poundage data for 1970, together with information obtained on usage levels reported, will be used to calculate the poundage occurring in each food category.

- Calculations, based on dietary consumption data, of the consumer exposure expected from consumption of each substance in each food category and in the total dietary.

The data will be assessed by NAS-NRC for adequacy and completeness before they are processed and forwarded, together with safety information and toxicological bibliographies submitted by respondents, to the Food and Drug Administration, who will make the safety evaluation on each substance.

CAUTION--In order for overall results of this survey to be of maximum validity, it is most important that the accompanying Survey Instructions be followed with extreme care. This applies particularly to special problems that may arise in answering such questions as the estimated annual poundage used (Question 3) and the levels of a particular substance used in foods (Question 8).

If there are any questions about the nature of the information requested or the interpretation of the instructions, please write or call Durward F. Dodgen (Staff Officer) or Paul E. Johnson (Executive Secretary, Food Protection Committee) at the following address:

Food Protection Committee
GRAS Review Office
National Academy of Sciences--
National Research Council
2101 Constitution Avenue, N. W.
Washington, D. C. 20418

Telephone: (202) 961-1537 or
961-1367

RETURN OF COMPLETED QUESTIONNAIRES

Completed questionnaires should be returned to the above address according to the following schedule: substances in the alphabetical group A through E by November 1, 1971; substances in alphabetical group F through R by December 1, 1971; and substances in alphabetical group S through Z by January 1, 1972. You are encouraged to return all of your completed questionnaires as soon as possible, but the above deadlines should be observed if you cannot have all of your questionnaires completed at the same time.

EXHIBIT 5

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

S U R V E Y I N S T R U C T I O N S *

Note -- Use a separate set of questionnaire forms for each substance to be reported. Each respondent is requested to make as many photocopies of the questionnaire as required for the number of substances to be reported. Additional copies of the forms may also be obtained from the GRAS Review Office.

Caution -- Report only single chemical substances or naturally occurring mixtures that are readily identified by a commonly used name. Although questionnaires are not to be completed for mixtures such as premixes, blends, or subassemblies, questionnaires should be completed for the components of such mixtures. The manner in which each type of respondent should report on such individual components is explained elsewhere in these instructions.

General Comments -- The questionnaire has been designed and precoded for automatic data processing. The small numbers throughout the questionnaire are key-punch instructions but are also used to identify spaces (boxes) in these instructions.

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*These Instructions and the accompanying questionnaire form are not to be used for reporting on GRAS substances used in baby and infant foods. Contact the GRAS Review Office (see address on page 5 of General Information section) if you need a special set of survey materials for this purpose.

Most responses in the first two pages of the questionnaire require only a check mark (preferably an "X") in the box next to the answer that is most appropriate. For questions requiring a numerical answer (except Question 8 -- see instructions), enter the numerals in the boxes provided so that the last digit of your answer is in the box at the extreme right. For answers that require a word fill-in response, print or type the word, using all capital letters and beginning in the box at the extreme left. Do not place more than one letter, numeral, or hyphen in any box, and do not place periods after abbreviated words or insert periods in the boxes containing letters. Leave a blank box between words.

The individual Company Code number is preassigned by the GRAS Review Office and appears on Questionnaire Page 1 in the upper left-hand corner and on all succeeding pages. Enter this same code number on all attachments to the questionnaire. Feel free to remove reference to any explicit company identification from attachments. The Sub. No. for the substance being reported, determined from APPENDIX A for most substances, is a four-digit number that must be entered by the respondent on each page of the questionnaire as directed in these Survey Instructions. Enter this same number on all attachments submitted with each questionnaire.

When attachments are submitted along with the questionnaire, it is essential that the respondent's Company Code number as well as the Sub. No. for the substance be written on each attachment and identified as such.

INSTRUCTIONS FOR QUESTIONNAIRE PAGE 1

Boxes 1-4 -- Your company's individual code number, which has been preassigned by the GRAS Review Office, appears in these spaces.

Question 1 (Substance Reported)

Boxes 5-8 -- Enter in these boxes the four-digit Sub. No. as listed in APPENDIX A corresponding to the common name of the substance being reported. If you are reporting on a substance not included in APPENDIX A, leave these boxes blank. The Sub. No. must also be entered on succeeding pages of the questionnaire as directed in these instructions.

Boxes 9-11 -- These boxes contain a key-punch card type number, which has no significance except for data processing purposes.

Common Name of Substance -- Enter on this line the common name of the substance being reported. Consult the alphabetical listing of substances in APPENDIX A and use the name corresponding to the Sub. No. being reported.

Note -- Respondents are urged to submit questionnaires not only for those substances listed in APPENDIX A, but also for all GRAS substances that fall in categories (2), (4), and (5) mentioned on the first page of the General Instructions. Therefore, if you are using any substance, even though it is not listed in APPENDIX A, for any purpose not explicitly covered by a food additive regulation (other than as a flavoring ingredient or adjunct), please complete a questionnaire for each such substance and enter the name by which it is commonly known on the line provided for "Common Name of Substance." Such substances will not have a preassigned Sub. No. (APPENDIX A), and boxes 5-8 should therefore be left blank.

Question 2 (Nature of Respondent's Interest in Substance)

Box 12 -- Check this box if your firm is a prime manufacturer of the substance.

Box 13 -- Check this box if your firm is a distributor of the substance (i.e. buys and resells the substance).

Box 14 -- Check this box if your firm sells the substance, as such, to food manufacturers, processors, or distributors.

Box 15 -- Check this box if you sell the substance, as such, directly to the individual or institutional consumer, i.e., hotels, restaurants, hospitals, schools, etc.

Box 16 -- Check this box if you use the substance as an ingredient in a premix or subassembly that is not a final food product, but which is used by your firm or sold as a premix or subassembly to other food processors or to the public. Examples of such a premix would be baking powder, drink mixes, dry sauce mixes, cake mixes, nutrient mixtures, emulsifier mixtures, etc.

Box 17 -- Check this box if your firm adds the substance, as such, to a final food or uses the substance in food processing, whether or not it keeps its identity in the final food.

Question 3 (Annual Poundage)

Information provided by the respondent to this question depends upon the nature of the respondent's interest in the substance (Question 2). Answer this question only if you checked boxes 15, 16, or 17 in Question 2.

The object of this question is to report the annual poundage of the substance committed by your firm to consumer packages (box 15 checked); to premixes, blends, or subassemblies (box 16 checked); or to a final food (box 17 checked) in the United States. Prime manufacturers (box 12 checked) and distributors (boxes 13 and 14 checked) should not answer this question unless they also checked boxes 15, 16, or 17 to

indicate use in these categories (boxes 15, 16, or 17). In any case, respondents should not include in their poundage report any amount of the substance sold, as such, to food manufacturers, processors, or distributors.

If you sell the substance directly to the consumer (box 15 checked), include in your report the total annual poundage of the substance your firm sells to this market, including in your estimate not only the retail customer but also the institutional customer (hotels, restaurants, hospitals, schools, etc.).

If you use the substance as an ingredient in preparing a premix, blend (including custom blends), or subassembly (box 16 checked), you should report the total of those usages in which your firm commits the substance to mixtures of other food ingredients or other food components, i.e., uses in which the substance loses its identity as an individual substance.

If you add the substance directly to food or use the substance in food processing (box 17 checked), report the total poundage of the substance that is used by your firm in this manner in all food products. Food processors should not include in their annual poundage report any components of custom blends that they purchase. *

Many respondents will fall in more than one of the last three categories (boxes 15, 16, or 17 checked). In such cases, the overall total poundage of the substance to be reported should be based on the combined total of the individual uses of the substance, provided that the individual totals are mutually exclusive; i.e., do not double count.

Note -- Some substances, such as BHA, are used with flavoring ingredients in a manner or at levels very different from any of their other applications in food. These substances, which are marked with an asterisk in APPENDIX A, are included in both this survey and in the FEMA survey, as explained in the General Information section. In these instances, do not report in Question 3 any poundage you have reported for this substance on the FEMA survey.

Box 18 -- This box does not occur as such but is comprised of a column of boxes (A to H) under the 1960 heading. This column is to be used for reporting the estimated annual poundage for the year 1960. Check the box corresponding to the poundage to be reported. If your firm used the substance in 1960, one of the boxes in this column (other than A) must be checked, even if you have to make a very rough estimate.

Box 19 -- This box does not occur as such but is comprised of a column of boxes (A to H) under the 1970 heading. This column is to be used for reporting the estimated annual poundage for 1970, or for the last complete year (calendar or fiscal) for which figures are available. Check the box corresponding to the poundage to be reported.

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*See "Special note to food processors", page 12.

Box 20-22 -- If the estimated 1960 annual poundage reported is greater than 1,000,000 lbs. (in which case box H in the 1960 column was checked), enter in these boxes the nearest whole number multiple of 1,000,000 lbs. appropriate, with leading zeros inserted in unused boxes to the left; e.g., to indicate 3,000,000 pounds, 003 would be entered in boxes 20-22, or to indicate 10,000,000 pounds, 010 would be entered.

Boxes 23-25 -- If the estimated 1970 annual poundage reported is greater than 1,000,000 lbs. (in which case box H in the 1970 column was checked), enter in these boxes the nearest whole number multiple of 1,000,000 lbs. appropriate, with leading zeros inserted in boxes to the left.

Boxes 26-35 -- Enter in these boxes your actual annual poundage (±10%) for 1970 if you have the data available. Enter the numerals in the boxes so that the last digit of your answer is in the box at the extreme right, and fill in unused boxes at the left with zeros; e.g., enter "0000750000" if you wish to indicate 750,000 lbs.

INSTRUCTIONS FOR QUESTIONNAIRE PAGE 2

Top of page -- Enter the Sub. No. in the boxes in the right-hand corner of the page (use same four-digit number as appears in boxes 5-8 on Questionnaire Page 1). Enter the common name of the substance on the center line at the top of the page (use same name as appears on Questionnaire Page 1).

Question 4 (Specifications, Identity, Purity)

This question is designed to obtain information on any specifications of identity and purity or other criteria, standards, or qualities that you insist the substance must meet in order to render it suitable according to its use in food.

Boxes 36-40 -- Check one or more of the boxes corresponding to the published specifications that you apply either in buying, selling, or using the substance.

Box 41 -- Check this box if the only applicable specifications are those provided by the supplier of the substance.

Box 42 -- Check this box if additional or different specifications apply, other than those corresponding to boxes 36-40, and attach appropriate data. (Note -- Code all attachments.)

Box 43 -- Check this box if no explicit specifications apply.

Question 5 (Further Information on Composition)

A few companies may, for purposes of their own, analyze a substance in detail beyond that involved in any applicable published specifications. Regardless of the means of identification or method of analysis (e.g., gas-liquid chromatography, thin-layer chromatography, infrared spectrophotometry, mass spectrometry, etc.), information on such additional data on composition, including trace constituents, is needed. It can play an invaluable role in the determination of safety, often with respect to points that had not yet been raised at the time of prior evaluations, or when specifications were established.

Box 44 -- Check this box if you have any such information.

Box 45 -- Check this box if any such information is attached. Please cite in full all information derived from literature sources that helps to identify and/or quantify any minor components that may be present in the substance. Full and correct literature references or references to possible sources of unpublished data should be provided. (Note -- Code all attachments.)

Box 46 -- Check this box if you have no such information.

Question 6 (Known effects of Processing, Storage)

Other parts of the questionnaire cover information on usage in terms of the amount (in percent) of the substance introduced into food, since this is often the only quantitative information that is both available and accurate. However, because some substances are often lost through volatilization, leaching, or by enzymatic or chemical reaction, the amount originally introduced may be reduced or changed in some way. In addition, some substances form breakdown or reaction products during processing or upon interaction with food constituents. It is information on such processes that is requested in this question.

Box 47 -- Check this box if the substance is known to be altered or lost in processing or on storage in food and is not consumed in the form or amount added.

Box 48 -- Check this box if information is attached explaining the path and extent of loss of the substance during processing or storage.

Box 49 -- Check this box if degradation or reaction products (produced in food as a result of use of the substance) are known.

Box 50 -- Check this box if information is attached identifying the degradation or reaction products.

Question 7 (Safety Information)

7a. First use in food

Boxes 51-54 -- Enter here, using the year only, the year your firm first used the substance or sold the substance for use in foods or in food processing. Enter "0000" if the year is not known.

7b. Reports on unpublished studies -- The purpose of this question is to elicit information on any unpublished reports pertaining to the safety of the substance, including studies relating to mutagenesis and teratology. Please respond as completely as possible, whether the information is available in the private files of your firm or elsewhere. If you know of any unpublished data but do not have access to the reports, please provide as many identifying details as possible on a separate sheet to permit tracking down such information.

Boxes 55-58 -- Check the appropriate box or boxes corresponding to the documentation attached (i.e., animal studies; epidemiologic or controlled human studies; studies of accidents or industrial exposure; and other studies, including determination of metabolic products and reports of natural occurrence or common use of the substance in foods.) Submit one copy of each complete report, regardless of how voluminous the data might be. Also, please attach an abstract or summary to each report.

7c. Bibliography -- In addition to unpublished data (Question 7b), all known published reports pertaining to the safety of the substance (animal or human studies; epidemiology; accidents or industrial exposure; metabolic studies; natural occurrence and common use; etc.) will be included in the safety evaluation and review. You are requested, therefore, to prepare a bibliography of the published reports (including reviews and translations) on all such studies conducted by or sponsored by your firm. Preferably, the bibliography should include in addition all other published reports pertaining to the safety of the substance of which you have knowledge. Note -- Each document cited should include the complete title of the report or study in addition to the usual literature reference or other source of information.

Box 59 -- Check this box if you have attached a bibliography of published reports pertaining to the safety of the substance.

7d. Other information relevant to safety

Box 60 -- Check this box if information on the manufacturing process is attached. The manufacturing process in a number of cases has distinct consequences for the safety in use of the final product. For example, the temperature of processing may alter composition, or substances made by one process may contain higher levels of certain impurities than those made by another process. If you are a prime manufacturer, therefore, it is extremely important that you report, as a general rule, the

major details of the manufacturing process (including raw materials identity and specifications, catalysts, manufacturing conditions, solvents and other agents used in processing, etc.) insofar as such details would have a practical bearing on safety. If the manufacturing information is common knowledge easily available from standard reference sources, the pertinent reference should be cited. (Note -- Code all attachments.)

Box 61 -- Check this box if any other information not specifically requested is attached relating to the question of safety or supporting the general recognition of safety of the substance. (Note -- Code all attachments.)

INSTRUCTIONS FOR QUESTIONNAIRE PAGES 3-6

Top of page

Boxes 1-4 -- Your company code number has been entered in these spaces.

Boxes 5-8 -- Enter in these boxes on each page the four-digit Sub. No. as listed in APPENDIX A corresponding to the common name of the substance being reported. This is the same number that was entered in boxes 5-8 on Questionnaire Page 1. If you are reporting on a substance not listed in APPENDIX A leave these boxes blank.

Enter the common name of the substance on the line following "Report on", using the same name as appears on Questionnaire Page 1.

Question 8 (Usage Report)

The information requested in this portion of the questionnaire is the crux of the whole survey. The language of the law, "generally recognized as safe for its intended use", makes clear that one cannot consider safety apart from the question of the manner and levels of use.

The purpose of this part of the questionnaire is to obtain quantitative data on the usual and maximum levels of the substance introduced into each food category for each intended technical effect. Information on the relative importance of the substance in achieving the intended technical effect is also requested.

The value of the final results is completely dependent on your conscientious participation. Overstatements of use are unwise because they may result in a safety margin apparently too narrow to be acceptable. Conversely, understatement can result in guidelines for good manufacturing practice (or the possibility of some national or international regulation) being more restrictive than necessary.

In order to simplify the task of tabulating the results, the food categories and technical effects to be used by the respondents have been grouped in as few broad categories as possible. The abbreviated food category groups are preprinted directly on Questionnaire Pages 3-6. Please consult APPENDIX B for an expanded listing of the category groups. The groups are adapted from US Department of Agriculture food consumption surveys, and this relationship is important in later evaluation of the usage data. The list of technical effects, together with corresponding code numbers, appears in APPENDIX C. These groupings should serve for most uses, and respondents should attempt to use those provided if at all possible. Provision has been made, however, for reporting food categories and technical effects not specifically listed.

To begin completing Question 8 for any substance, first select from the twenty-eight food categories, listed in Questionnaire Pages 3-6, each of the final food categories in which the substance is used or recommended for use to produce a particular technical effect or in which the substance will appear because of its use in a premix. If a particular food category clearly does not fit within the listed categories, then specify as precisely as possible, in the spaces provided at the end of the twenty-eight listed categories on Questionnaire Page 6, the additional category that is applicable for the particular substance. Only end uses should be reported; e.g., a substance added to eggs intended for bakery use should be reported under "Baked Goods" (Food Category 1) rather than under "Eggs" (Food Category 12).

After the food categories to be reported have been selected, then proceed to provide the information under each of the numbered boxes to the right of the food category, using a separate line to report information for each technical effect within any given food category.

Note -- Respondents need not return those pages in Question 8 that are not used. For example, if a food processor uses a particular substance only in breakfast cereals (page 3, Food Category 2), the last three pages of the questionnaire (pages 4-6) are not used and need not be returned in the questionnaire for that particular substance.

Boxes 9-11 -- These boxes contain preprinted key-punch card type numbers, which have no significance except for data processing purposes.

Boxes 12-13 -- Enter in these boxes the code number, listed in APPENDIX C, corresponding to the technical effect for which the substance is used or recommended for use in the particular food category being reported. If a substance is used to produce more than one technical effect within any given food category, then data should be provided for the additional different technical effect(s), using the second and, if necessary, third lines appearing to the right of the food category. Space has been provided for reporting up to three different technical effects within each food category. Do not, however, report on the same technical effect more than once within any given food category. If it is necessary to

specify a technical effect that is not listed in APPENDIX C, enter "00" in boxes 12-13 on this particular line and attach an appropriate explanation.

Box 14 -- (Note -- Only those respondents who checked boxes 15, 16, or 17 in Question 2 should answer this question.) The abbreviation "IR" above box 14 stands for "Importance Rating." For each technical effect within a given food category, rate the importance of the substance in achieving this technical effect according to the following scale: A = essential (i.e., the food simply could not be produced commercially for the intended market without use of the substance); B = important (i.e., without the substance, an inferior, greatly changed or considerably more expensive product would result); C = useful (i.e., the substance is useful but replaceable -- it has value but something else could be used just as well). Enter in box 14 the appropriate letter designation.

Boxes 15-21 -- These boxes are used for reporting the usual concentration of the substance, in percent, introduced into each food category to produce each different intended technical effect. "Usual concentration" means normal or average concentration roughly weighted by annual product volume. If a substance is used in more than one food product within a given food category, the usual level to be reported would be influenced most by the product with the largest volume. For example, calcium propionate is used to retard spoilage in baked goods. The level used in bread is 0.3%, while that used in English muffins varies seasonally but may reach 1.0%. A company that produces a broad line of baked goods, with bread produced in the highest volume, would probably report as a "usual" level a figure determined primarily by the level in bread. The maximum level (see boxes 22-28 below) would be used to report the highest level used in any product, such as that in English muffins.

Enter the usual usage level in boxes 15-21 so that the decimal point appears as shown, between boxes 16 and 17. Note -- Please insert zeros to fill out unused boxes; e.g., a value of one-tenth percent would be reported as 00.01000, not .01, or .01000, or 00.10. Similarly, one percent would be reported as 01.00000.

If you are a prime manufacturer (box 12, Question 2 checked) or distributor (box 13 or 14, Question 2 checked), or if you sell the substance directly to the individual consumer (box 15, Question 2 checked), or if you manufacture a premix, blend, or subassembly but do not manufacture the finished food (box 16, Question 2 checked), please report the levels of the substance that would result in being introduced into the finished food (i.e., final food as consumed) when the substance is used according to your recommendations.

If your firm manufactures the finished food (box 17, Question 2 checked), you will have certain knowledge of the levels of the substance introduced therein. Food processors are requested to report usage levels not only for substances added as such to foods but also for substances that are components of custom blends of known composition.

In reporting the usage levels of substances that are components of premixes, blends (including custom blends), or subassemblies, calculate the percentage level of the substance on the basis of the amount of the substance from the premix that would be introduced into the final food as consumed (reconstituted or diluted for use) -- not on the basis of the percentage level of the premix itself introduced into the food.* For example, a premix such as a flavored syrup intended for use as a beverage base, which is to be diluted with water in the ratio of 1 volume of syrup to 6 volumes of final beverage, would show the percent of each component substance of the premix syrup on which you report at a level one-sixth the level actually present in the syrup.

The following examples will explain what is intended by the designation "food as consumed": a substance used in a cake frosting mix would be reported on the basis of the amount of the substance appearing not in the dry mix itself and not as part of the total frosted cake but on the basis of the amount in the frosting per se after its preparation following the manufacturer's instructions; a substance used in a gravy mix would be reported on the basis of the amount of the substance appearing in the reconstituted gravy itself and not on the basis of the amount appearing in that portion of the entire TV dinner of which the gravy was one component; a substance used in dry, ready-to-eat cereal (e.g., corn flakes) would be reported on the basis of the amount of the substance appearing in the dry corn flakes, not on the basis of the amount in the corn flakes-plus-milk combination.

Take extreme care to exercise accuracy in calculating use levels; special care should be taken in converting from the quantities and units expressed in normal formulations to percent. Percentage concentration should preferably be reported on the basis of w/w, but v/v, w/v, and v/w may be used where more convenient.

Boxes 22-28 -- These boxes are used for reporting the maximum concentration of the substance, in percent, introduced into each food category to produce each different intended technical effect. Report the maximum level of the substance used or recommended by your firm, entering the numerals, as in boxes 15-21, so that the decimal point appears as shown, between boxes 23 and 24.

Boxes 29-42 -- Enter in these boxes, beginning to the left with box 29, the name of the specific food in which the maximum level of the substance is used or recommended for use to produce each different technical effect within each food category. Use the generic name for the food commodity, not your firm's trade name of the item. As directed in the instructions for boxes 12-13, space has been provided for reporting usage levels for up to three different technical effects within each food category, but the same technical effect should not be reported more than once within any given food category. Also, please note that only one letter, numeral, or hyphen should be inserted in each box; leave an empty box between words. Abbreviations of the specific food must be made as necessary so that only boxes 29-42 are used, but do not use more than one line for each designation of any given specific food. Do not place periods after abbreviated words or insert periods in the boxes containing letters.

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*See "Special note concerning certain premixes", page 12.

Boxes 43-45 -- (Note -- Only those respondents who answered Question 3 -- and who checked boxes 15, 16, or 17 in Question 2 -- should answer this question.) The object of this question is to obtain information on how your annual poundage (Question 3) is distributed in the various food categories. Enter the approximate (estimated) percentage of your total usage of the substance that falls into each food category in which the substance is used. (Please note that if the substance is used to produce more than one technical effect in any given food category, you are to enter only one combined percentage value for all technical effects for that particular food category; i.e., do not break down the percent of use within each food category by technical effect.)

If you are reporting usage levels of a substance in four different food categories (e.g., in baked goods, cheese, processed fruits, and beverages-Type I), then you should indicate the percent of your total poundage of that substance that is used in each of those four food categories. Report percentage values to the nearest whole number, and use leading zeros for numbers less than 10; e.g., you might report 09 (%) usage in baked goods, 31 in cheese, 15 in processed fruits, and 45 in beverages-Type I. The sum of the values entered should total 100%.

* * * * * * * *

Special note to food processors: If you buy finished food products from a "private label" company for distribution by your firm, or even if you have some of your finished food products prepared according to your formula by another firm on a contract basis, you should not report the annual poundage (Question 3) of the GRAS substances used in these products. In such cases, the firm that actually adds the GRAS substances to the food products must report the annual poundage, and you should make certain that such firms report these usages in this survey. However, you are requested to report the usage levels (Question 8) of the GRAS substances in products custom prepared according to your formula by an outside firm.

Special note concertain certain premixes: Mixtures consisting primarily of one major ingredient to which a small amount of an antioxidant, stabilizer, anticaking agent, etc., has been added are technically classified as premixes, although the minor conponent has no relationship to the primary technical effect for which the mixture (premix) is used in food and the technical effect for which the minor component is used in the premix does not carry over into the final food. Examples would be anticaking agents in sodium chloride, or antioxidants in emulsifiers. In most such cases, food processors will not know the exact concentration of the minor components in the premixes, and for all practical purposes in reporting on usage levels (Question 8), the premix may be considered to be composed of the major ingredient alone. The premix manufacturer, however, must treat such mixtures as ordinary premixes, which means that annual poundage data must be given in Question 3 for each component of the premix.

EXHIBIT 6

BABY FOODS

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

S U R V E Y I N S T R U C T I O N S

Note -- Use a separate set of questionnaire forms for each substance to be reported. Each respondent is requested to make as many photocopies of the questionnaire as required for the number of substances to be reported. Additional copies of the forms may also be obtained from the GRAS Review Office.

Caution -- Report only single chemical substances or naturally occurring mixtures that are readily identified by a commonly used name. Although questionnaires are not to be completed for mixtures such as premixes, blends, or subassemblies, questionnaires should be completed for the components of such mixtures. The manner in which each type of respondent should report on such individual components is explained elsewhere in these instructions.

General Comments -- The questionnaire has been designed and precoded for automatic data processing. The small numbers throughout the questionnaire are key-punch instructions but are also used to identify spaces (boxes) in these instructions.

Most responses in the first two pages of the questionnaire require only a check mark (preferably an "X") in the box next to the answer that is most appropriate. For questions requiring a numerical answer (except Question 8 -- see instructions), enter the numerals in the boxes provided so that the last digit of your answer is in the box at the extreme right. For answers that require a word fill-in response, print or type the word, using all capital letters and beginning in the box at the extreme left. Do not place more than one letter, numeral, or hyphen in any box, and do not place periods after abbreviated words or insert periods in the boxes containing letters. Leave a blank box between words.

The individual Company Code number is preassigned by the GRAS Review Office and appears on Questionnaire Page 1 in the upper left-hand corner and on all succeeding pages. Enter this same code number on all attachments to the questionnaire. Feel free to remove reference to any explicit company identification from attachments. The Sub. No. for the substance being reported, determined from APPENDIX A for most substances, is a four-digit number that must be entered by the respondent on each page of the questionnaire as directed in these Survey Instructions. Enter this same number on all attachments submitted with each questionnaire.

When attachments are submitted along with the questionnaire, it is essential that the respondent's Company Code number as well as the Sub. No. for the substance be written on each attachment and identified as such.

INSTRUCTIONS FOR QUESTIONNAIRE PAGE 1

Boxes 1-4 -- Your company's individual code number, which has been preassigned by the GRAS Review Office, appears in these spaces.

Question 1 (Substance Reported)

Boxes 5-8 -- Enter in these boxes the four-digit Sub. No. as listed in APPENDIX A corresponding to the common name of the substance being reported. If you are reporting on a substance not included in APPENDIX A, leave these boxes blank. The Sub. No. must also be entered on succeeding pages of the questionnaire as directed in these instructions.

Boxes 9-11 -- These boxes contain a key-punch card type number, which has no significance except for data processing purposes.

Common Name of Substance -- Enter on this line the common name of the substance being reported. Consult the alphabetical listing of substances in APPENDIX A and use the name corresponding to the Sub. No. being reported.

Note -- Respondents are urged to submit questionnaires not only for those substances listed in APPENDIX A, but also for all GRAS substances that fall in categories (2), (4), and (5) mentioned on the first page of the General Instructions. Therefore, if you are using any substance, even though it is not listed in APPENDIX A, for any purpose not explicitly covered by a food additive regulation (other than as a flavoring ingredient or adjunct), please complete a questionnaire for each such substance and enter the name by which it is commonly known on the line provided for "Common Name of Substance." Such substances will not have a preassigned Sub. No. (APPENDIX A), and boxes 5-8 should therefore be left blank.

Question 2 (Nature of Respondent's Interest in Substance)

Box 12 -- Check this box if your firm is a prime manufacturer of the substance.

Box 13 -- Check this box if your firm is a distributor of the substance (i.e. buys and resells the substance).

Box 14 -- Check this box if your firm sells the substance, as such, to food manufacturers, processors, or distributors.

Box 15 -- Check this box if you sell the substance, as such, directly to the individual or institutional consumer, i.e., hotels, restaurants, hospitals, schools, etc.

Box 16 -- Check this box if you use the substance as an ingredient in a premix or subassembly that is not a final food product, but which is used by your firm or sold as a premix or subassembly to other food processors or to the public. Examples of such a premix would be baking powder, drink mixes, dry sauce mixes, cake mixes, nutrient mixtures, emulsifier mixtures, etc.

Box 17 -- Check this box if your firm adds the substance, as such, to a final food or uses the substance in food processing, whether or not it keeps its identity in the final food.

Question 3 (Annual Poundage)

Information provided by the respondent to this question depends upon the nature of the respondent's interest in the substance (Question 2). Answer this question only if you checked boxes 15, 16, or 17 in Question 2.

The object of this question is to report the annual poundage of the substance committed by your firm to consumer packages (box 15 checked); to premixes, blends, or subassemblies (box 16 checked); or to a final food (box 17 checked) in the United States. Prime manufacturers (box 12 checked) and distributors (boxes 13 and 14 checked) should not answer this question unless they also checked boxes 15, 16, or 17 to

indicate use in these categories (boxes 15, 16, or 17). In any case, respondents should not include in their poundage report any amount of the substance sold, as such, to food manufacturers, processors, or distributors.

If you sell the substance directly to the consumer (box 15 checked), include in your report the total annual poundage of the substance your firm sells to this market, including in your estimate not only the retail customer but also the institutional customer (hotels, restaurants, hospitals, schools, etc.).

If you use the substance as an ingredient in preparing a premix, blend (including custom blends), or subassembly (box 16 checked), you should report the total of those usages in which your firm commits the substance to mixtures of other food ingredients or other food components, i.e., uses in which the substance loses its identity as an individual substance.

If you add the substance directly to food or use the substance in food processing (box 17 checked), report the total poundage of the substance that is used by your firm in this manner in all food products. Food processors should not include in their annual poundage report any components of custom blends that they purchase. *

Many respondents will fall in more than one of the last three categories (boxes 15, 16, or 17 checked). In such cases, the overall total poundage of the substance to be reported should be based on the combined total of the individual uses of the substance, provided that the individual totals are mutually exclusive; i.e., do not double count.

Note -- Some substances, such as BHA, are used with flavoring ingredients in a manner or at levels very different from any of their other applications in food. These substances, which are marked with an asterisk in APPENDIX A, are included in both this survey and in the FEMA survey, as explained in the General Information section. In these instances, do not report in Question 3 any poundage you have reported for this substance on the FEMA survey.

Box 18 -- This box does not occur as such but is comprised of a column of boxes (A to H) under the 1960 heading. This column is to be used for reporting the estimated annual poundage for the year 1960. Check the box corresponding to the poundage to be reported. If your firm used the substance in 1960, one of the boxes in this column (other than A) must be checked, even if you have to make a very rough estimate.

Box 19 -- This box does not occur as such but is comprised of a column of boxes (A to H) under the 1970 heading. This column is to be used for reporting the estimated annual poundage for 1970, or for the last complete year (calendar or fiscal) for which figures are available. Check the box corresponding to the poundage to be reported.

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*See "Special note to food processors", page 12.

Box 20-22 -- If the estimated 1960 annual poundage reported is greater than 1,000,000 lbs. (in which case box H in the 1960 column was checked), enter in these boxes the nearest whole number multiple of 1,000,000 lbs. appropriate, with leading zeros inserted in unused boxes to the left; e.g., to indicate 3,000,000 pounds, 003 would be entered in boxes 20-22, or to indicate 10,000,000 pounds, 010 would be entered.

Boxes 23-25 -- If the estimated 1970 annual poundage reported is greater than 1,000,000 lbs. (in which case box H in the 1970 column was checked), enter in these boxes the nearest whole number multiple of 1,000,000 lbs. appropriate, with leading zeros inserted in boxes to the left.

Boxes 26-35 -- Enter in these boxes your actual annual poundage (±10%) for 1970 if you have the data available. Enter the numerals in the boxes so that the last digit of your answer is in the box at the extreme right, and fill in unused boxes at the left with zeros; e.g., enter "0000750000" if you wish to indicate 750,000 lbs.

INSTRUCTIONS FOR QUESTIONNAIRE PAGE 2

Top of page -- Enter the Sub. No. in the boxes in the right-hand corner of the page (use same four-digit number as appears in boxes 5-8 on Questionnaire Page 1). Enter the common name of the substance on the center line at the top of the page (use same name as appears on Questionnaire Page 1).

Question 4 (Specifications, Identity, Purity)

This question is designed to obtain information on any specifications of identity and purity or other criteria, standards, or qualities that you insist the substance must meet in order to render it suitable according to its use in food.

Boxes 36-40 -- Check one or more of the boxes corresponding to the published specifications that you apply either in buying, selling, or using the substance.

Box 41 -- Check this box if the only applicable specifications are those provided by the supplier of the substance.

Box 42 -- Check this box if additional or different specifications apply, other than those corresponding to boxes 36-40, and attach appropriate data. (Note -- Code all attachments.)

Box 43 -- Check this box if no explicit specifications apply.

Question 5 (Further Information on Composition)

A few companies may, for purposes of their own, analyze a substance in detail beyond that involved in any applicable published specifications. Regardless of the means of identification or method of analysis (e.g., gas-liquid chromatography, thin-layer chromatography, infrared spectrophotometry, mass spectrometry, etc.), information on such additional data on composition, including trace constituents, is needed. It can play an invaluable role in the determination of safety, often with respect to points that had not yet been raised at the time of prior evaluations, or when specifications were established.

Box 44 -- Check this box if you have any such information.

Box 45 -- Check this box if any such information is attached. Please cite in full all information derived from literature sources that helps to identify and/or quantify any minor components that may be present in the substance. Full and correct literature references or references to possible sources of unpublished data should be provided. (Note -- Code all attachments.)

Box 46 -- Check this box if you have no such information.

Question 6 (Known effects of Processing, Storage)

Other parts of the questionnaire cover information on usage in terms of the amount (in percent) of the substance introduced into food, since this is often the only quantitative information that is both available and accurate. However, because some substances are often lost through volatilization, leaching, or by enzymatic or chemical reaction, the amount originally introduced may be reduced or changed in some way. In addition, some substances form breakdown or reaction products during processing or upon interaction with food constituents. It is information on such processes that is requested in this question.

Box 47 -- Check this box if the substance is known to be altered or lost in processing or on storage in food and is not consumed in the form or amount added.

Box 48 -- Check this box if information is attached explaining the path and extent of loss of the substance during processing or storage.

Box 49 -- Check this box if degradation or reaction products (produced in food as a result of use of the substance) are known.

Box 50 -- Check this box if information is attached identifying the degradation or reaction products.

Question 7 (Safety Information)

7a. First use in food

Boxes 51-54 -- Enter here, using the year only, the year your firm first used the substance or sold the substance for use in foods or in food processing. Enter "0000" if the year is not known.

7b. Reports on unpublished studies -- The purpose of this question is to elicit information on any unpublished reports pertaining to the safety of the substance, including studies relating to mutagenesis and teratology. Please respond as completely as possible, whether the information is available in the private files of your firm or elsewhere. If you know of any unpublished data but do not have access to the reports, please provide as many identifying details as possible on a separate sheet to permit tracking down such information.

Boxes 55-58 -- Check the appropriate box or boxes corresponding to the documentation attached (i.e., animal studies; epidemiologic or controlled human studies; studies of accidents or industrial exposure; and other studies, including determination of metabolic products and reports of natural occurrence or common use of the substance in foods.) Submit one copy of each complete report, regardless of how voluminous the data might be. Also, please attach an abstract or summary to each report.

7c. Bibliography -- In addition to unpublished data (Question 7b), all known published reports pertaining to the safety of the substance (animal or human studies; epidemiology; accidents or industrial exposure; metabolic studies; natural occurrence and common use; etc.) will be included in the safety evaluation and review. You are requested, therefore, to prepare a bibliography of the published reports (including reviews and translations) on all such studies conducted by or sponsored by your firm. Preferably, the bibliography should include in addition all other published reports pertaining to the safety of the substance of which you have knowledge. Note -- Each document cited should include the complete title of the report or study in addition to the usual literature reference or other source of information.

Box 59 -- Check this box if you have attached a bibliography of published reports pertaining to the safety of the substance.

7d. Other information relevant to safety

Box 60 -- Check this box if information on the manufacturing process is attached. The manufacturing process in a number of cases has distinct consequences for the safety in use of the final product. For example, the temperature of processing may alter composition, or substances made by one process may contain higher levels of certain impurities than those made by another process. If you are a prime manufacturer, therefore, it is extremely important that you report, as a general rule, the

major details of the manufacturing process (including raw materials identity and specifications, catalysts, manufacturing conditions, solvents and other agents used in processing, etc.) insofar as such details would have a practical bearing on safety. If the manufacturing information is common knowledge easily available from standard reference sources, the pertinent reference should be cited. (Note -- Code all attachments.)

Box 61 -- Check this box if any other information not specifically requested is attached relating to the question of safety or supporting the general recognition of safety of the substance. (Note -- Code all attachments.)

INSTRUCTIONS FOR QUESTIONNAIRE PAGES 3-4

Top of page

Boxes 1-4 -- Your company code number has been entered in these spaces.

Boxes 5-8 -- Enter in these boxes on each page the four-digit Sub. No. as listed in APPENDIX A corresponding to the common name of the substance being reported. This is the same number that was entered in boxes 5-8 on Questionnaire Page 1. If you are reporting on a substance not listed in APPENDIX A leave these boxes blank.

Enter the common name of the substance on the line following "Report on", using the same name as appears on Questionnaire Page 1.

Question 8 (Usage Report)

The information requested in this portion of the questionnaire is the crux of the whole survey. The language of the law, "generally recognized as safe for its intended use", makes clear that one cannot consider safety apart from the question of the manner and levels of use.

The purpose of this part of the questionnaire is to obtain quantitative data on the usual and maximum levels of the substance introduced into each food category for each intended technical effect. Information on the relative importance of the substance in achieving the intended technical effect is also requested.

The value of the final results is completely dependent on your conscientious participation. Overstatements of use are unwise because they may result in a safety margin apparently too narrow to be acceptable. Conversely, understatement can result in guidelines for good manufacturing practice (or the possibility of some national or international regulation) being more restrictive than necessary.

In order to simplify the task of tabulating the results, the food categories and technical effects to be used by the respondents have been grouped in as few broad categories as possible. The abbreviated food category groups are preprinted directly on Questionnaire Pages 3-4. Please consult APPENDIX B for an expanded listing of the category groups. The list of technical effects, together with corresponding code numbers, appears in APPENDIX C. These groupings should serve for most uses, and respondents should attempt to use those provided if at all possible. Provision has been made, however, for reporting food categories and technical effects not specifically listed.

To begin completing Question 8 for any substance, first select from the thirteen food categories, listed in Questionnaire Pages 3-4, each of the final food categories in which the substance is used or recommended for use to produce a particular technical effect or in which the substance will appear because of its use in a premix. If a particular food category clearly does not fit within the listed categories, then specify as precisely as possible, in the spaces provided at the end of the thirteen listed categories on Questionnaire Page 4, the additional category that is applicable for the particular substance. Only end uses should be reported; e.g., a substance added to eggs intended for baked goods should be reported under "Baked Goods" (Food Category 1) rather than under "Eggs" (Food Category 7).

After the food categories to be reported have been selected, then proceed to provide the information under each of the numbered boxes to the right of the food category, using a separate line to report information for each technical effect within any given food category.

Boxes 9-11 -- These boxes contain preprinted key-punch card type numbers, which have no significance except for data processing purposes.

Boxes 12-13 -- Enter in these boxes the code number, listed in APPENDIX C, corresponding to the technical effect for which the substance is used or recommended for use in the particular food category being reported. If a substance is used to produce more than one technical effect within any given food category, then data should be provided for the additional <u>different</u> technical effect(s), using the second and, if necessary, third lines appearing to the right of the food category. Space has been provided for reporting up to three <u>different</u> technical effects within each food category. <u>Do not, however, report on the same technical effect more than once within any given food category</u>. If it is necessary to

specify a technical effect that is not listed in APPENDIX C, enter "00" in boxes 12-13 on this particular line and attach an appropriate explanation.

Box 14 -- (Note -- Only those respondents who checked boxes 15, 16, or 17 in Question 2 should answer this question.) The abbreviation "IR" above box 14 stands for "Importance Rating." For each technical effect within a given food category, rate the importance of the substance in achieving this technical effect according to the following scale: A = essential (i.e., the food simply could not be produced commercially for the intended market without use of the substance); B = important (i.e., without the substance, an inferior, greatly changed or considerably more expensive product would result); C = useful (i.e., the substance is useful but replaceable -- it has value but something else could be used just as well). Enter in box 14 the appropriate letter designation.

Boxes 15-21 -- These boxes are used for reporting the usual concentration of the substance, in percent, introduced into each food category to produce each different intended technical effect. "Usual concentration" means normal or average concentration roughly weighted by annual product volume. If a substance is used in more than one food product within a given food category, the usual level to be reported would be influenced most by the product with the largest volume. For example, calcium propionate is used to retard spoilage in baked goods. The level used in bread is 0.3%, while that used in English muffins varies seasonally but may reach 1.0%. A company that produces a broad line of baked goods, with bread produced in the highest volume, would probably report as a "usual" level a figure determined primarily by the level in bread. The maximum level (see boxes 22-28 below) would be used to report the highest level used in any product, such as that in English muffins.

Enter the usual usage level in boxes 15-21 so that the decimal point appears as shown, between boxes 16 and 17. Note -- Please insert zeros to fill out unused boxes; e.g., a value of one-tenth percent would be reported as 00.01000, not .01, or .01000, or 00.10. Similarly, one percent would be reported as 01.00000.

If you are a prime manufacturer (box 12, Question 2 checked) or distributor (box 13 or 14, Question 2 checked), or if you sell the substance directly to the individual consumer (box 15, Question 2 checked), or if you manufacture a premix, blend, or subassembly but do not manufacture the finished food (box 16, Question 2 checked), please report the levels of the substance that would result in being introduced into the finished food (i.e., final food as consumed) when the substance is used according to your recommendations.

If your firm manufactures the finished food (box 17, Question 2 checked), you will have certain knowledge of the levels of the substance introduced therein. Food processors are requested to report usage levels not only for substances added as such to foods but also for substances that are components of custom blends of known composition.

In reporting the usage levels of substances that are components of premixes, blends (including custom blends), or subassemblies, calculate the percentage level of the substance on the basis of the amount of the substance from the premix that would be introduced into the final food as consumed (reconstituted or diluted for use) -- not on the basis of the percentage level of the premix itself introduced into the food.* For example, a premix such as a flavored syrup intended for use as a beverage base, which is to be diluted with water in the ratio of 1 volume of syrup to 6 volumes of final beverage, would show the percent of each component substance of the premix syrup on which you report at a level one-sixth the level actually present in the syrup.

The following examples will explain what is intended by the designation "food as consumed": a substance used in a cake frosting mix would be reported on the basis of the amount of the substance appearing not in the dry mix itself and not as part of the total frosted cake but on the basis of the amount in the frosting per se after its preparation following the manufacturer's instructions; a substance used in a gravy mix would be reported on the basis of the amount of the substance appearing in the reconstituted gravy itself and not on the basis of the amount appearing in that portion of the entire TV dinner of which the gravy was one component; a substance used in dry, ready-to-eat cereal (e.g., corn flakes) would be reported on the basis of the amount of the substance appearing in the dry corn flakes, not on the basis of the amount in the corn flakes-plus-milk combination.

Take extreme care to exercise accuracy in calculating use levels; special care should be taken in converting from the quantities and units expressed in normal formulations to percent. Percentage concentration should preferably be reported on the basis of w/w, but v/v, w/v, and v/w may be used where more convenient.

Boxes 22-28 -- These boxes are used for reporting the maximum concentration of the substance, in percent, introduced into each food category to produce each different intended technical effect. Report the maximum level of the substance used or recommended by your firm, entering the numerals, as in boxes 15-21, so that the decimal point appears as shown, between boxes 23 and 24.

Boxes 29-42 -- Enter in these boxes, beginning to the left with box 29, the name of the specific food in which the maximum level of the substance is used or recommended for use to produce each different technical effect within each food category. Use the generic name for the food commodity, not your firm's trade name of the item. As directed in the instructions for boxes 12-13, space has been provided for reporting usage levels for up to three different technical effects within each food category, but the same technical effect should not be reported more than once within any given food category. Also, please note that only one letter, numeral, or hyphen should be inserted in each box; leave an empty box between words. Abbreviations of the specific food must be made as necessary so that only boxes 29-42 are used, but do not use more than one line for each designation of any given specific food. Do not place periods after abbreviated words or insert periods in the boxes containing letters.

---

*See "Special note concerning certain premixes", page 12.

Boxes 43-45 -- (Note -- Only those respondents who answered Question 3 -- and who checked boxes 15, 16, or 17 in Question 2 -- should answer this question.) The object of this question is to obtain information on how your annual poundage (Question 3) is distributed in the various food categories. Enter the approximate (estimated) percentage of your total usage of the substance that falls into each food category in which the substance is used. (Please note that if the substance is used to produce more than one technical effect in any given food category, you are to enter only one combined percentage value for all technical effects for that particular food category; i.e., do not break down the percent of use within each food category by technical effect.)

If you are reporting usage levels of a substance in four different food categories (e.g., in baked goods, cheese, processed fruits, and beverages-Type I), then you should indicate the percent of your total poundage of that substance that is used in each of those four food categories. Report percentage values to the nearest whole number, and use leading zeros for numbers less than 10; e.g., you might report 09 (%) usage in baked goods, 31 in cheese, 15 in processed fruits, and 45 in beverages-Type I. The sum of the values entered should total 100%.

* * * * * * * *

Special note to food processors: If you buy finished food products from a "private label" company for distribution by your firm, or even if you have some of your finished food products prepared according to your formula by another firm on a contract basis, you should not report the annual poundage (Question 3) of the GRAS substances used in these products. In such cases, the firm that actually adds the GRAS substances to the food products must report the annual poundage, and you should make certain that such firms report these usages in this survey. However, you are requested to report the usage levels (Question 8) of the GRAS substances in products custom prepared according to your formula by an outside firm.

Special note concertain certain premixes: Mixtures consisting primarily of one major ingredient to which a small amount of an antioxidant, stabilizer, anticaking agent, etc., has been added are technically classified as premixes, although the minor conponent has no relationship to the primary technical effect for which the mixture (premix) is used in food and the technical effect for which the minor component is used in the premix does not carry over into the final food. Examples would be anticaking agents in sodium chloride, or antioxidants in emulsifiers. In most such cases, food processors will not know the exact concentration of the minor components in the premixes, and for all practical purposes in reporting on usage levels (Question 8), the premix may be considered to be composed of the major ingredient alone. The premix manufacturer, however, must treat such mixtures as ordinary premixes, which means that annual poundage data must be given in Question 3 for each component of the premix.

EXHIBIT 7

CAUTION--READ INSTRUCTIONS BEFORE COMPLETING QUESTIONNAIRE

OMB No. 57-S71003 Approval Expires 2-29-72

1-4 Company Code

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

1. SUBSTANCE REPORTED

5-8 Sub. No. [ ][ ][ ][ ] 9-11 Card Type [0][0][1]

Common Name of Substance

2. NATURE OF RESPONDENT'S INTEREST IN SUBSTANCE

Check one or more boxes:

12 ☐ Manufactures substance

13 ☐ Distributes substance (i.e., buys and resells substance)

14 ☐ Sells substance to food manufacturers, processors, or distributors

15 ☐ Sells substance directly to individual or institutional consumer

16 ☐ Uses substance in preparing a premix, blend, or subassembly for sale

17 ☐ Adds substance directly to food or uses substance in food processing

NOTE: If you checked boxes 15, 16, or 17 above, then you must also report your annual poundage in Question 3. If you did not check boxes 15, 16, or 17, skip Question 3 entirely and proceed directly to Question 4 on page 2.

3. ANNUAL POUNDAGE (Answer this question only if you checked boxes 15, 16, or 17 in Question 2)

1960		1970	
☐	A	☐	0 lbs.
☐	B	☐	1 - < 100 lbs.
☐	C	☐	100 - < 1000 lbs.
☐	D	☐	1000 - < 10,000 lbs.
☐	E	☐	10,000 - < 100,000 lbs.
☐	F	☐	100,000 - < 500,000 lbs.
☐	G	☐	500,000 - < 1,000,000 lbs.
☐ 18	H	☐ 19	> 1,000,000 lbs.

Check the appropriate box in each column at the left to indicate the range in which your annual poundage would fall. Include only the amount of the substance that you sold directly to the individual or institutional consumer; or used in preparing a premix, blend, or subassembly for sale; or added directly to food or used in food processing. If you used the substance in 1960, one of the boxes in the 1960 column must be checked, even if you have to make a very rough estimate. Do not include in your poundage report any amount of the substance that you sold as such to food manufacturers, processors, or distributors.

20-22 [ ][ ][ ] Enter nearest multiple of 1,000,000 if 1960 poundage > 1,000,000 lbs.

23-25 [ ][ ][ ] Enter nearest multiple of 1,000,000 if 1970 poundage > 1,000,000 lbs.

26-35 [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] If you have the data available, enter in the boxes at the left the actual poundage figure (±10%) for 1970.

Report on _____

4. SPECIFICATIONS, IDENTITY, PURITY

Check one or more boxes:

36 ☐ Food Chemicals Codex (FCC)
37 ☐ FAO/WHO
38 ☐ National Formulary (NF)
39 ☐ United States Pharmacopeia (USP)
40 ☐ American Chemical Society (ACS)
41 ☐ Supplier specifications
42 ☐ Other (data attached)
43 ☐ No explicit specifications

5. FURTHER INFORMATION ON COMPOSITION

Check one or more boxes:

44 ☐ Respondent has further detailed information on composition, trace constituents, etc.

45 ☐ Such information is attached
46 ☐ Respondent has no such information

6. KNOWN EFFECTS OF PROCESSING, STORAGE

Check appropriate boxes:

47 ☐ Substance is known to be altered or lost in processing or storage
48 ☐ Information is attached explaining path and extent of loss
49 ☐ Degradation or reaction products are known
50 ☐ Information is attached identifying such degradation or reaction products

7. SAFETY INFORMATION

7a. First use in foods

51-54 ☐☐☐☐ Enter year your firm first used substance or sold substance for use in foods or in food processing. Enter 0000 if year is not known.

7b. Reports on the following types of unpublished studies are attached:

55 ☐ Animal studies
56 ☐ Epidemiological or controlled human studies
57 ☐ Studies of accidents or industrial exposure
58 ☐ Other (including reports of natural occurrence or common use of substance in foods)

7c. Bibliography

59 ☐ Bibliography of published reports (animal or human studies; epidemiology; accidents or industrial exposure; natural occurrence and common use; etc.) is attached

7d. Other information relevant to safety

60 ☐ Outline of manufacturing process is attached
61 ☐ Other pertinent information that has not been specifically requested is attached

62-70 ☐☐☐☐☐☐☐☐ (These boxes for office use only)

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

Company Code (1-4) Sub. No. (5-8) Report on _____

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	I R 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
0	1	1	1-Baked Goods						•							•																				
0	1	2							•							•																			X	
0	1	3							•							•																				
0	2	1	2-Breakfast Cereals						•							•																				
0	2	2							•							•																			X	
0	2	3							•							•																				
0	3	1	3-Other Grain Products, Pastas, etc.						•							•																				
0	3	2							•							•																			X	
0	3	3							•							•																				
0	4	1	4-Fats and Oils						•							•																				
0	4	2							•							•																			X	
0	4	3							•							•																				
0	5	1	5-Milk, Milk Products						•							•																				
0	5	2							•							•																			X	
0	5	3							•							•																				
0	6	1	6-Cheese						•							•																				
0	6	2							•							•																			X	
0	6	3							•							•																				
0	7	1	7-Frozen Dairy Desserts, Mixes						•							•																				
0	7	2							•							•																			X	
0	7	3							•							•																				
0	8	1	8-Processed Fruits, Juices, Drinks, etc.						•							•																				
0	8	2							•							•																			X	
0	8	3							•							•																				
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

Company Code (1-4) Sub. No. (5-8) Report on _____

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	I R 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
0	9	1	9-Fruit Ices, Water Ices						•							•																				
0	9	2							•							•																				
0	9	3							•							•																				
1	0	1	10-Meat Products						•							•																				
1	0	2							•							•																				
1	0	3							•							•																				
1	1	1	11-Poultry Products						•							•																				
1	1	2							•							•																				
1	1	3							•							•																				
1	2	1	12-Eggs, Egg Products						•							•																				
1	2	2							•							•																				
1	2	3							•							•																				
1	3	1	13-Fish Products						•							•																				
1	3	2							•							•																				
1	3	3							•							•																				
1	4	1	14-Processed Vegetables, Juices						•							•																				
1	4	2							•							•																				
1	4	3							•							•																				
1	5	1	15-Condiments, Relishes, Salt Substitutes						•							•																				
1	5	2							•							•																				
1	5	3							•							•																				
1	6	1	16-Candy						•							•																				
1	6	2							•							•																				
1	6	3							•							•																				
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

Company Code 1-4 | Sub. No. 5-8 | Report on _____ |

Card Type			Food Category	Tech Effect Code		I R	Level, %													Specific Food in Which Maximum Level Used													% of Total Use		
							Usual							Maximum																					
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
1	7	1	17-Sugar, Confections					•							•																				
1	7	2						•							•																				X
1	7	3						•							•																				X
1	8	1	18-Jams, Jellies, Sweet Spreads					•							•																				
1	8	2						•							•																				X
1	8	3						•							•																				X
1	9	1	19-Toppings, Sweet Sauces, Syrups					•							•																				
1	9	2						•							•																				X
1	9	3						•							•																				X
2	0	1	20-Gelatins, Puddings, Fillings					•							•																				
2	0	2						•							•																				X
2	0	3						•							•																				X
2	1	1	21-Soups, Soup Mixes					•							•																				
2	1	2						•							•																				X
2	1	3						•							•																				X
2	2	1	22-Snack Foods					•							•																				
2	2	2						•							•																				X
2	2	3						•							•																				X
2	3	1	23-Beverages, Type I					•							•																				
2	3	2						•							•																				X
2	3	3						•							•																				X
2	4	1	24-Beverages, Type II (Alcoholic)					•							•																				
2	4	2						•							•																				X
2	4	3						•							•																				X
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

Company Code (1-4) Sub. No. (5-8) Report on _____

Card Type			Food Category	Tech Effect Code		I R	Level, %													Specific Food in Which Maximum Level Used															% of Total Use		
							Usual							Maximum																							
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
2	5	1	25-Nuts, Nut Products																																		
2	5	2																																		
2	5	3																																		
2	6	1	26-Vegetable Proteins, Reconstituted																																		
2	6	2																																		
2	6	3																																		
2	7	1	27-Gravies, Sauces, Mixes																																		
2	7	2																																		
2	7	3																																		
2	8	1	28-Dairy Products Analogs																																		
2	8	2																																		
2	8	3																																		
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

EXHIBIT 8

BABY FOODS

CAUTION--READ INSTRUCTIONS BEFORE COMPLETING QUESTIONNAIRE

OMB No. 57-S71003 Approval Expires 2-29-72

1-4 Company Code

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

1. SUBSTANCE REPORTED

5-8 Sub. No. [ ][ ][ ][ ]

9-11 Card Type [1][0][1]

Common Name of Substance

2. NATURE OF RESPONDENT'S INTEREST IN SUBSTANCE

Check one or more boxes:

12 ☐ Manufactures substance

13 ☐ Distributes substance (i.e., buys and resells substance)

14 ☐ Sells substance to food manufacturers, processors, or distributors

15 ☐ Sells substance directly to individual or institutional consumer

16 ☐ Uses substance in preparing a premix, blend, or subassembly for sale

17 ☐ Adds substance directly to food or uses substance in food processing

NOTE: If you checked boxes 15, 16, or 17 above, then you must also report your annual poundage in Question 3. If you did not check boxes 15, 16, or 17, skip Question 3 entirely and proceed directly to Question 4 on page 2.

3. ANNUAL POUNDAGE (Answer this question only if you checked boxes 15, 16, or 17 in Question 2)

1960		1970	
☐	A	☐	0 lbs.
☐	B	☐	1 - < 100 lbs.
☐	C	☐	100 - < 1000 lbs.
☐	D	☐	1000 - < 10,000 lbs.
☐	E	☐	10,000 - < 100,000 lbs.
☐	F	☐	100,000 - < 500,000 lbs.
☐	G	☐	500,000 - < 1,000,000 lbs.
☐	H	☐	> 1,000,000 lbs.
18		19	

Check the appropriate box in each column at the left to indicate the range in which your annual poundage would fall. Include only the amount of the substance that you sold directly to the individual or institutional consumer; or used in preparing a premix, blend, or subassembly for sale; or added directly to food or used in food processing. If you used the substance in 1960, one of the boxes in the 1960 column must be checked, even if you have to make a very rough estimate. Do not include in your poundage report any amount of the substance that you sold as such to food manufacturers, processors, or distributors.

20-22 [ ][ ][ ] Enter nearest multiple of 1,000,000 if 1960 poundage > 1,000,000 lbs.

23-25 [ ][ ][ ] Enter nearest multiple of 1,000,000 if 1970 poundage > 1,000,000 lbs.

26-35 [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ] If you have the data available, enter in the boxes at the left the actual poundage figure (±10%) for 1970.

BABY FOODS

Company Code NAS-NRC Food Protection Committee GRAS Survey — Page 2 Sub. No. ☐☐☐☐

Report on _____

4. SPECIFICATIONS, IDENTITY, PURITY

Check one or more boxes:

36 ☐ Food Chemicals Codex (FCC)
37 ☐ FAO/WHO
38 ☐ National Formulary (NF)
39 ☐ United States Pharmacopeia (USP)
40 ☐ American Chemical Society (ACS)
41 ☐ Supplier specifications
42 ☐ Other (data attached)
43 ☐ No explicit specifications

5. FURTHER INFORMATION ON COMPOSITION

Check one or more boxes:

44 ☐ Respondent has further detailed information on composition, trace constituents, etc.

45 ☐ Such information is attached
46 ☐ Respondent has no such information

6. KNOWN EFFECTS OF PROCESSING, STORAGE

Check appropriate boxes:

47 ☐ Substance is known to be altered or lost in processing or storage
48 ☐ Information is attached explaining path and extent of loss
49 ☐ Degradation or reaction products are known
50 ☐ Information is attached identifying such degradation or reaction products

7. SAFETY INFORMATION

7a. First use in foods

51-54 ☐☐☐☐ Enter year your firm first used substance or sold substance for use in foods or in food processing. Enter 0000 if year is not known.

7b. Reports on the following types of unpublished studies are attached:

55 ☐ Animal studies
56 ☐ Epidemiological or controlled human studies
57 ☐ Studies of accidents or industrial exposure
58 ☐ Other (including reports of natural occurrence or common use of substance in foods)

7c. Bibliography

59 ☐ Bibliography of published reports (animal or human studies; epidemiology; accidents or industrial exposure; natural occurrence and common use; etc.) is attached

7d. Other information relevant to safety

60 ☐ Outline of manufacturing process is attached
61 ☐ Other pertinent information that has not been specifically requested is attached

62-70 ☐☐☐☐☐☐☐☐☐ (These boxes for office use only)

National Survey of Substances GRAS

8. USAGE REPORT BABY FOODS

Company Code 1-4 Sub. No. 5-8 Report on _____

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	I R 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
8	1	1	1-Baked Goods																																	
8	1	2																																		X
8	1	3																																		X
8	2	1	2-Cereals																																	
8	2	2																																		X
8	2	3																																		X
8	3	1	3-Formula Products																																	
8	3	2																																		X
8	3	3																																		X
8	4	1	4-Processed Fruits, Juices, Drinks																																	
8	4	2																																		X
8	4	3																																		X
8	5	1	5-Meat Products																																	
8	5	2																																		X
8	5	3																																		X
8	6	1	6-Poultry Products																																	
8	6	2																																		X
8	6	3																																		X
8	7	1	7-Eggs, Egg Products																																	
8	7	2																																		X
8	7	3																																		X
8	8	1	8-Fish Products																																	
8	8	2																																		X
8	8	3																																		X
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

National Survey of Substances GRAS

8. USAGE REPORT BABY FOODS

Company Code 1-4 Sub. No. 5-8 Report on _____ Page 4

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	I R 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
8	9	1	9-Processed Vegetables																																	
8	9	2																																		
8	9	3																																		
9	0	1	10-Puddings, Custards, etc.																																	
9	0	2																																		
9	0	3																																		
9	1	1	11-Soups, Soup Mixes																																	
9	1	2																																		
9	1	3																																		
9	2	1	12-High Meat Dinners, Cheese Foods																																	
9	2	2																																		
9	2	3																																		
9	3	1	13-Combination Dinners																																	
9	3	2																																		
9	3	3																																		
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

EXHIBIT 9

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee

NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

APPENDIX A

Part I -- Alphabetical Listing of GRAS Substances from Food Additive Regulations, §121.101 (Subpart B), Paragraph (d)

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0001	*Acacia		Acacia senegal (L.) Willdenow, Leguminosae; gum arabic
0002	*Acetic Acid	$C_2H_4O_2$	
0003	*Adipic Acid	$C_6H_{10}O_4$	hexanedioic acid; 1,4-butane-dicarboxylic acid
0004	*Agar-agar		Gelidium cartilagineum (L.) Gaillon, Gelidiaceae; Gracilaria confervoides (L.) Greville, Sphaerococcaceae; agar
0005	*DL-Alanine	$C_3H_7NO_2$	DL-α-alanine; dl-α-aminopropionic acid; dl-2-aminopropanoic acid
0006	*L-Alanine	$C_3H_7NO_2$	L-α-alanine; L-α-aminopropionic acid; L-2-aminopropanoic acid
0007	Aluminum Calcium Silicate	$CaAl_2Si_1O_8$, or $Ca_2Al_2SiO_7$	calcium aluminosilicate
0008	Aluminum Ammonium Sulfate	$AlNH_4(SO_4)_2.12H_2O$	ammonium alum
0009	Aluminum Potassium Sulfate	$AlK(SO_4)_2.12H_2O$	potash alum; potassium alum
0010	Aluminum Sodium Sulfate	$AlNa(SO_4)_2$, or $AlNa(SO_4)_2.12H_2O$	soda alum; sodium alum
0011	Aluminum Sulfate	$Al_2(SO_4)_3.xH_2O$	cake alum; patent alum
0012	*Ammonium Alginate		algin
0013	Ammonium Bicarbonate	NH_4HCO_3	ammonium acid carbonate; ammonium hydrogen carbonate
0014	Ammonium Carbonate	(mixture of NH_4HCO_3 and $NH_2.COONH_4$)	hartshorn; ammonium sesquicarbonate; crystal ammonia

*Substance included in FEMA survey. See special note on page 4 of Survey Instructions.

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0015	Ammonium Hydroxide	NH_4OH	ammonia solution; aqua ammonia
0016	Ammonium Phosphate, Dibasic	$(NH_4)_2HPO_4$	diammonium phosphate; secondary ammonium phosphate; diammonium hydrogen phosphate
0017	Ammonium Phosphate, Monobasic	$NH_4H_2PO_4$	monoammonium phosphate; primary ammonium phosphate; ammonium dihydrogen phosphate; ammonium biphosphate
0018	Ammonium Saccharin	$C_7H_8N_2O_3S$	ammonium o-benzosulfimide
0019	Ammonium Sulfate	$(NH_4)_2SO_4$	
0020	DL-Arginine	$C_6H_{14}N_4O_2$	1-amino-4-guanidovaleric acid; guanidine aminovaleric acid
0021	L-Arginine	$C_6H_{14}N_4O_2$	(same as above)
0022	*Ascorbic Acid	$C_6H_8O_6$	vitamin C; L-ascorbic acid
0023	Ascorbyl Palmitate	$C_{22}H_{38}O_7$	palmitoyl L-ascorbic acid
0024	DL-Aspartic Acid	$C_4H_7NO_4$	aminosuccinic acid; asparagic acid
0025	L-Aspartic Acid	$C_4H_7NO_4$	(same as above)
0026	Beeswax		yellow wax; yellow beeswax
0027	*Beeswax, Bleached		bleached yellow wax; white beeswax
0028	Bentonite		
0029	Benzoic Acid	$C_7H_6O_2$	
0030	Biotin	$C_{10}H_{16}N_2O_3S$	cis-tetrahydro-2-oxothieno(3,4-d)-imidazoline-4-valeric acid; vitamin H; coenzyme R
0031	Butane	C_4H_{10}	
0032	*Butylated Hydroxyanisole	$C_{11}H_{16}O_2$	mixture of 2- and 3-tert-butyl-4-methoxy phenol; BHA
0033	*Butylated Hydroxytoluene	$C_{15}H_{24}O$	2,6-di-tert-butyl-p-cresol; BHT; DBPC
0034	*Caffeine	$C_8H_{10}N_4O_2$	1,3,7-trimethylxanthine

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0035	*Calcium Acetate	$Ca(C_2H_3O_2)_2$	calcium diacetate
0036	*Calcium Alginate		algin
0037	Calcium Ascorbate	$C_{12}H_{14}CaO_{12}.2H_2O$	ascorbic acid calcium salt
0038	Calcium Carbonate	$CaCO_3$	precipitated calcium carbonate
0039	Calcium Chloride	$CaCl_2$, or $CaCl_2.2H_2O$	
0040	Calcium Citrate	$Ca_3(C_6H_5O_7)_2.4H_2O$	
0041	Calcium Gluconate	$Ca(C_6H_{11}O_7)_2$	
0042	Calcium Glycerophosphate	$C_3H_7CaO_6P$	
0043	Calcium Hexametaphosphate		
0044	Calcium Hydroxide	$Ca(OH)_2$	slaked lime
0045	Calcium Lactate	$Ca(C_3H_5O_3)_2$	
0046	Calcium Oxide	CaO	lime; quick lime
0047	Calcium Pantothenate	$C_{18}H_{32}CaN_2O_{10}$	pantothenic acid calcium salt; dextro calcium pantothenate
0048	Calcium Phosphate, Dibasic	$CaHPO_4.2H_2O$	dicalcium phosphate; calcium monohydrogen phosphate; secondary calcium phosphate; dicalcium orthophosphate
0049	Calcium Phosphate, Monobasic	$Ca(H_2PO_4)_2$	monocalcium phosphate; calcium biphosphate; acid calcium phosphate; primary calcium phosphate
0050	*Calcium Phosphate, Tribasic	approx. $10CaO.-3P_2O_5.H_2O$	tricalcium phosphate; tertiary calcium phosphate; precipitated calcium phosphate
0051	Calcium Phytate	$C_6H_6(CaPO_4)_6$	hexacalcium phytate
0052	Calcium Propionate	$Ca(C_3H_5O_2)_2$	propionic acid calcium salt
0053	Calcium Pyrophosphate	$Ca_2P_2O_7$	calcium diphosphate
0054	Calcium Saccharin	$C_{14}H_8CaN_2O_6S_2.-3\frac{1}{2}H_2O$	calcium o-benzosulfimide
0055	Calcium Silicate		tricalcium silicate

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0056	Calcium Sorbate	$Ca(C_6H_7O_2)_2$	
0057	Calcium Sulfate	$CaSO_4$, or $CaSO_4.2H_2O$	
0058	*Caprylic Acid	$C_8H_{16}O_2$	octanoic acid
0059	*Caramel		burnt sugar
0060	Carbon Dioxide	CO_2	
0061	Carnauba Wax		Copernicia cereferia (Arruda) Mart; Brasil wax
0062	*Carob Bean Gum		Ceratonia siliqua (L.) Taub., Leguminosae; locust bean gum
0063	Carotene	$C_{40}H_{56}$	β-carotene; provitamin A
0064	Cholic Acid	$C_{24}H_{40}O_5$	3α, 7α, 12α-trihydroxy-5β-cholanic acid; cholanic acid
0065	Choline Bitartrate	$C_9H_{19}NO_7$	(2-hydroxyethyl)trimethylammonium bitartrate
0066	Choline Chloride	$C_5H_{14}ClNO$	(2-hydroxyethyl)trimethylammonium chloride
0067	*Chondrus Extract		(from Solieriaceae and Gigartinaceae families of Rhodophyceae); carrageenan; Irish moss
0068	*Citric Acid	$C_6H_8O_7$	
0069	Copper Gluconate	$C_{12}H_{22}CuO_{14}$	cupric gluconate
0070	Cuprous Iodide	CuI	
0071	*L-Cysteine	$C_3H_7NO_2S$	β-mercaptoalanine; 2-amino-3-mercaptopropanoic acid
0072	*DL-Cystine	$C_6H_{12}N_2O_4S_2$	3,3'-dithiobis(2-aminopropanoic acid); β,β'-dithioalanine
0073	*L-Cystine	$C_6H_{12}N_2O_4S_2$	(same as above)
0074	Desoxycholic Acid	$C_{24}H_{40}O_4$	deoxycholic acid; 3α, 12α-dihydroxy-5β-cholanic acid
0075	Dextrans	(average mol. wt. < 100,000)	
0076	Diacetyl Tartaric Acid Esters of Mono- and Diglycerides		

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0077	Dilauryl Thiodipropionate	$C_{30}H_{58}O_4S$	
0078	*Erythorbic Acid	$C_6H_8O_6$	isoascorbic acid; D-arabo-ascrobic acid
0079	*Ethyl Formate	$C_3H_6O_2$	
0080	Ferric Phosphate	$FePO_4 \cdot \underline{x}H_2O$	iron phosphate; ferric ortho-phosphate
0081	Ferric Pyrophosphate	$Fe_4(P_2O_7)_3 \cdot \underline{x}H_2O$	iron pyrophosphate
0082	Ferric Sodium Pyrophosphate	$Na_8Fe_4(P_2O_7)_5 \cdot \underline{x}H_2O$	sodium ferric pyrophosphate; sodium iron pyrophosphate
0083	Ferrous Gluconate	$C_{12}H_{22}FeO_{14} \cdot 2H_2O$	iron gluconate
0084	Ferrous Lactate	$C_6H_{10}FeO_6$	iron lactate
0085	Ferrous Sulfate	$FeSO_4 \cdot \underline{x}H_2O$	iron sulfate
0086	*Ghatti Gum		Anogeissus latifolia Wall., Combretaceae
0087	*Glutamic Acid	$C_5H_9NO_4$	L-glutamic acid; 2-aminopentane-dioic acid; α-aminoglutaric acid
0088	Glutamic Acid Hydrochloride	$C_5H_9NO_4 \cdot HCl$	2-aminopentanedioic acid hydro-chloride
0089	*Glycerin	$C_3H_8O_3$	glycerol
0090	*Glyceryl Monostearate		monostearin
0091	Glycocholic Acid	$C_{26}H_{43}NO_6$	N-cholylglycine
0092	*Guar Gum		Cyamopsis tetragonolobus (L.,) Taub., Leguminosae; guar flour
0093	*Gum Guaiac		Guajacum officinale L. or G. sanctum L., Zygophyllaceae Constit.
0094	Helium	He	
0095	DL-Histidine	$C_6H_9N_3O_2$	α-amino-4(or 5)-imidazole-propionic acid
0096	L-Histidine	$C_6H_9N_3O_2$	(same as above)
0097	Hydrochloric Acid	HCl	muriatic acid

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0098	Hydrogen Peroxide	H_2O_2	peroxide
0099	Inositol	$C_6H_{12}O_6$	1,2,3,5/4,6-cyclohexanehexol; i-inositol; meso-inositol
0100	Iron, Reduced	Fe	ferrum reductum; iron-by-hydrogen
0101	*DL-Isoleucine	$C_6H_{13}NO_2$	2-amino-3-methylvaleric acid
0102	*L-Isoleucine	$C_6H_{13}NO_2$	(same as above)
0103	*Lactic Acid	$C_3H_6O_3$	2-hydroxypropionic acid; DL-lactic acid
0104	Lecithin		phosphatidylcholine
0105	*DL-Leucine	$C_6H_{13}NO_2$	2-amino-4-methylvaleric acid
0106	*L-Leucine	$C_6H_{13}NO_2$	(same as above)
0107	Linoleic Acid	$C_{18}H_{32}O_2$	cis-9,cis-12-octadecadienoic acid
0108	DL-Lysine	$C_6H_{14}N_2O_2$	2,6-diaminohexanoic acid
0109	L-Lysine	$C_6H_{14}N_2O_2$	(same as above)
0110	Magnesium Carbonate	$MgCO_3$, or approx. $Mg(OH)_2.3MgCO_3.3H_2O$, or $Mg(OH)_2.4MgCO_2.-5H_2O$	precipitated magnesium carbonate; magnesia alba
0111	Magnesium Hydroxide	$Mg(OH)_2$	magnesium hydrate
0112	Magnesium Oxide	MgO	magnesia
0113	Magnesium Phosphate, Dibasic	$MgHPO_4.3H_2O$	dimagnesium phosphate; dimagnesium orthophosphate; secondary magnesium phosphate; magnesium hydrogen phosphate
0114	Magnesium Phosphate, Tribasic	$Mg_3(PO_4)_2.xH_2O$	trimagnesium phosphate; neutral magnesium phosphate
0115	Magnesium Silicate	approx. $2MgO.5SiO2.-xH_2O$, or $2MgO.-3SiO_2.xH_2O$	magnesium trisilicate
0116	Magnesium Stearate		
0117	Magnesium Sulfate	$MgSO_4.7H_2O$	epsom salts

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0118	*Malic Acid	$C_4H_6O_5$	DL-malic acid; hydroxysuccinic acid; apple acid
0119	Manganese Chloride	$MnCl_2.4H_2O$	manganous chloride
0120	Manganese Citrate	$Mn_3(C_6H_5O_7)_2$	manganous citrate
0121	Manganese Gluconate	$Mn(C_6H_{11}O_7)_2.3H_2O$	
0122	Manganese Glycerophosphate	$C_3H_7MnO_6P.\underline{x}H_2O$	
0123	Manganese Hypophosphite	$Mn(PH_2O_2)_2.H_2O$	
0124	Manganese Sulfate	$MnSO_4.H_2O$	manganous sulfate
0125	Manganous Oxide	MnO	Manganese monoxide; manganese oxide
0126	Mannitol	$C_6H_{14}O_6$	1,2,3,4,5,6-hexanehexol; D-mannitol; mannite
0127	*Methylcellulose		cellulose methyl ether
0128	*Methylparaben	$C_8H_8O_3$	methyl-p-hydroxybenzoate; p-hydroxybenzoic acid methyl ester
0129	*Monoammonium Glutamate	$C_5H_{12}N_2O_4$	monoammonium L-glutamate; ammonium glutamate
0130	Mono- and Diglycerides		
0131	Monoglyceride Citrate		
0132	Monoisopropyl Citrate	$C_9H_{14}O_8$	isopropyl citrate
0133	Monopotassium Glutamate	$C_5H_8KNO_4.H_2O$	monopotassium L-glutamate; potassium glutamate; MPG
0134	Monosodium Glutamate	$C_5H_8NNaO_4.H_2O$	monosodium L-glutamate; sodium glutamate; MSG
0135	Monosodium Phosphate Derivatives of Mono- and Diglycerides		
0136	Niacin	$C_6H_5NO_2$	pyridine-3-carboxylic acid; nicotinic acid

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0137	Niacinamide	$C_6H_6N_2O$	3-pyridinecarboxylic acid amide; nicotinamide; nicotinic acid amide
0138	Nitrogen	N_2	
0139	*Nitrous Oxide	N_2O	dinitrogen monoxide
0140	Ox Bile Extract		powdered oxgall extract
0141	D-Pantothenyl Alcohol	$C_9H_{19}NO_4$	D(+)-α,γ-dihydroxy-N-(3-hydroxypropyl)-β,β-dimethylbutyramide; dexpanthenol; pantothenol
0142	Papain		*Carica papaya* L., *Caricacea*
0143	*DL-Phenylalanine	$C_9H_{11}NO_2$	α-amino-β-phenylpropionic acid; α-aminohydrocinnamic acid
0144	*L-Phenylalanine	$C_9H_{11}NO_2$	(same as above)
0145	*Phosphoric Acid	H_3PO_4	orthophosphoric acid
0146	Potassium Acid Tartrate	$C_4H_5KO_6$	potassium bitartrate; potassium hydrogen tartrate; cream of tartar
0147	Potassium Alginate		algin
0148	Potassium Bicarbonate	$KHCO_3$	potassium acid carbonate
0149	Potassium Bisulfite	$KHSO_3$	potassium acid sulfite
0150	Potassium Carbonate	K_2CO_3	pearl ash
0151	Potassium Chloride	KCl	potassium muriate; potash muriate
0152	Potassium Citrate	$K_3C_6H_5O_7 \cdot H_2O$	tripotassium citrate
0153	Potassium Glycerophosphate	$C_3H_7K_2O_6P \cdot 3H_2O$	
0154	Potassium Hydroxide	KOH	caustic potash
0155	Potassium Iodide	KI	
0156	Potassium Metabisulfite	$K_2S_2O_5$	potassium pyrosulfite
0157	Potassium Phosphate, Dibasic	K_2HPO_4	dipotassium monophosphate; potassium hydrogen phosphate; dipotassium orthophosphate

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0158	*Potassium Sorbate	$C_6H_7KO_2$	sorbic acid potassium salt; 2,4-hexadienoic acid potassium salt
0159	Potassium Sulfate	K_2SO_4	
0160	Propane	C_3H_8	
0161	*DL-Proline	$C_5H_9NO_2$	2-pyrrolidinecarboxylic acid
0162	*L-Proline	$C_5H_9NO_2$	(same as above)
0163	*Propionic Acid	$C_3H_6O_2$	
0164	*Propylene Glycol	$C_3H_8O_2$	1,2-propanediol; methyl glycol
0165	*Propyl Gallate	$C_{10}H_{12}O_5$	gallic acid propyl ester
0166	*Propylparaben	$C_{10}H_{12}O_3$	propyl-p-hydroxybenzoate; p-hydroxybenzoic acid propyl ester
0167	Pyridoxine Hydrochloride	$C_8H_{11}NO_3.HCl$	5-hydroxy-6-methyl-3,4-pyridine-dimethanol hydrochloride; vitamin B_6 hydrochloride; pyridoxol hydrochloride
0168	Rennet		rennin; rennase; chymosin
0169	Riboflavin	$C_{17}H_{20}N_4O_6$	vitamin B_2; riboflavine
0170	Riboflavin 5-Phosphate	$C_{17}H_{20}N_4O_9PNa.2H_2O$	vitamin B_2 phosphate (sodium salt); riboflavine phosphate (sodium); riboflavin 5'-phosphate sodium
0171	Saccharin	$C_7H_5NO_3S$	2,3-dihydro-3-oxobenzisosulfonazole; o-benzosulfimide; gluside
0172	DL-Serine	$C_3H_7NO_3$	2-amino-3-hydroxypropionic acid
0173	L-Serine	$C_3H_7NO_3$	(same as above)
0174	Silica Aerogel	SiO_2	silica; silicon dioxide
0175	*Sodium Acetate	$C_2H_3NaO_2$, or $C_2H_3NaO_2.3H_2O$	
0176	Sodium Acid Pyrophosphate	$Na_2H_2P_2O_7$	disodium pyrophosphate; disodium dihydrogen pyrophosphate
0177	*Sodium Alginate		algin
0178	Sodium Aluminosilicate	approx. $Na_2O.Al_2O_3.13.2SiO_2$	sodium silicoaluminate

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0179	Sodium Aluminum Phosphate	$NaAl_3H_{14}(PO_4)_8.4H_2O$, or $Na_3Al_2H_{15}(PO_4)_8$	sodium aluminum phosphate, acidic
0180	Sodium Ascorbate	$C_6H_7NaO_6$	ascorbic acid sodium salt; vitamin C sodium; sodium L-ascorbate
0181	*Sodium Benzoate	$C_7H_5NaO_2$	benzoate of soda
0182	Sodium Bicarbonate	$NaHCO_3$	sodium acid carbonate; baking soda
0183	Sodium Bisulfite	(mixture of $NaHSO_3$ and $Na_2S_2O_5$)	sodium acid sulfite; sodium hydrogen sulfite
0184	Sodium Calcium Aluminosilicate, Hydrated		sodium calcium silicoaluminate
0185	Sodium Carbonate	$Na_2CO_3.\underline{x}H_2O$	soda ash; sal soda
0186	*Sodium Carboxymethylcellulose		cellulose gum; CMC
0187	Sodium Caseinate		casein-sodium
0188	Sodium Chloride	NaCl	salt; common salt; table salt
0189	*Sodium Citrate	$Na_3C_6H_5O_7$ or $Na_3C_6H_5O_7.2H_2O$	trisodium citrate
0190	Sodium Diacetate	$C_4H_7NaO_4.\underline{x}H_2O$	sodium hydrogen diacetate; sodium acid acetate
0191	Sodium Gluconate	$C_6H_{11}NaO_7$	gluconic acid sodium salt
0192	Sodium Hydroxide	NaOH	caustic soda; lye; white caustic
0193	Sodium Metabisulfite	$Na_2S_2O_5$	sodium pyrosulfite
0194	*Sodium Metaphosphate	$(NaPO_3)x$ through $Na_xH_2P_xO_{3x+1}$ to $Na_{x+2}P_xO_{3x+1}$	sodium hexametaphosphate; sodium polyphosphate; sodium tetraphosphate; sodium trimetaphosphate; sodium tetrametaphosphate
0195	Sodium Pectinate		
0196	Sodium Pantothenate	$C_9H_{16}NNaO_5$	
0197	*Sodium Phosphate, Dibasic	Na_2HPO_4, or $Na_2HPO_4.2H_2O$	disodium monohydrogen phosphate; disodium phosphate; disodium hydrogen phosphate; sodium orthophosphate, secondary; phosphate of soda; DSP

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0198	Sodium Phosphate, Monobasic	NaH_2PO_4, or $NaH_2PO_4.H_2O$, or $NaH_2PO_4.2H_2O$	sodium biphosphate; monosodium phosphate; monosodium dihydrogen phosphate; sodium dihydrogen phosphate; acid sodium phosphate; monosodium orthophosphate; primary sodium phosphate; MSP
0199	Sodium Phosphate, Tribasic	Na_3PO_4, or $Na_3PO_4.H_2O$, or $Na_3PO_4.12H_2O$	trisodium phosphate; trisodium orthophosphate; tertiary sodium phosphate; TSP
0200	Sodium Potassium Tartrate	$C_4H_4KNaO_6.4H_2O$	potassium sodium tartrate; rochelle salt
0201	Sodium Propionate	$C_3H_5NaO_2$	propionic acid sodium salt
0202	Sodium Pyrophosphate	$Na_4P_2O_7$, or $Na_4P_2O_7.10H_2O$	tetrasodium diphosphate; tetrasodium pyrophosphate; TSPP
0203	*Sodium Saccharin	$C_7H_4NNaO_3S.2H_2O$	sodium o-benzosulfimide; soluble saccharin
0204	Sodium Sesquicarbonate	$Na_2CO_3.NaHCO_3.2H_2O$	
0205	Sodium Sorbate	$C_6H_7NaO_2$	
0206	Sodium Sulfite	Na_2SO_3	exsiccated sodium sulfite
0207	Sodium Tartrate	$C_4H_4Na_2O_6,2H_2O$	disodium tartrate; disodium d-tartrate
0208	Sodium Taurocholate	$C_{26}H_{44}NNaO_7S$	
0209	Sodium Thiosulfate	$Na_2S_2O_3.5H_2O$	sodium hyposulfite
0210	Sodium Tripolyphosphate	$Na_5P_3O_{10}$, or $Na_5P_3O_{10}.6H_2O$	sodium triphosphate; pentasodium triphosphate; tripolyphosphate; STPP
0211	Sorbic Acid	$C_6H_8O_2$	2,4-hexadienoic acid
0212	*Sorbitol	$C_6H_{14}O_6$	1,2,3,4,5,6-hexanehexol; D-sorbitol; D-glucitol; D-sorbite
0213	Stannous Chloride	$SnCl_2$, or $SnCl_2.2H_2O$	tin dichloride
0214	Stearyl Citrate		

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0215	*Sterculia Gum		Sterculia urens Roxburgh, Sterculiaceae, or Cochlospermum gossypium A. P. DeCondolle, Bixaceae; karaya gum
0216	Succinic Acid	$C_4H_6O_4$	1,4-butanedioic acid
0217	*Sulfur Dioxide	SO_2	
0218	Sulfuric Acid	H_2SO_4	
0219	*Tartaric Acid	$C_4H_6O_6$	L(+)-Tartaric Acid
0220	Taurocholic Acid	$C_{26}H_{45}NO_7S$	cholaic acid; cholyltaurine
0221	*Thiamine Hydrochloride	$C_{12}H_{17}ClN_4OS.HCl$	vitamin B_1 hydrochloride; thiamine chloride; aneurine hydrochloride
0222	*Thiamine Mononitrate	$C_{12}H_{17}N_5O_4S$	vitamin B_1 mononitrate; aneurine mononitrate
0223	Thiodipropionic Acid	$C_6H_{10}O_4S$	3,3'-thiodipropionic acid
0224	DL-Threonine	$C_4H_9NO_3$	2-amino-3-hydroxybutyric acid
0225	L-Threonine	$C_4H_9NO_3$	(same as above)
0226	dl-Alpha Tocopherol	$C_{29}H_{50}O_2$	form of vitamin E
0227	Tocopherols Concentrate, Mixed		form of vitamin E
0228	d-Alpha Tocopheryl Acetate	$C_{31}H_{52}O_3$	d-alpha tocopherol acetate; form of vitamin E
0229	dl-Alpha Tocopheryl Acetate	$C_{31}H_{52}O_3$	dl-alpha tocopherol acetate; form of vitamin E
0230	d-Alpha Tocopheryl Acetate Concentrate		d-alpha tocopherol acetate concentrate; form of vitamin E
0231	d-Alpha Tocopheryl Acid Succinate	$C_{33}H_{54}O_5$	d-alpha tocopherol acid succinate; form of vitamin E
0232	*Tragacanth		Astragalus gummifer Labillardiere, Leguminosae; gum tragacanth
0233	Triacetin	$C_9H_{14}O_6$	glyceryl triacetate

Sub. No.	Common Name of Substance	Formula	Other Identifying Names (Botanical Nomenclature, Chemical Names, Synonyms)
0234	*Triethyl Citrate	$C_6H_5O_7(C_2H_5)_3$	ethyl citrate
0235	DL-Tryptophane	$C_{11}H_{12}N_2O_2$	α-aminoindole-3-propionic acid; tryptophan
0236	L-Tryptophane	$C_{11}H_{12}N_2O_2$	(same as above)
0237	DL-Tyrosine	$C_9H_{11}NO_3$	β-(p-hydroxyphenyl)alanine
0238	L-Tyrosine	$C_9H_{11}NO_3$	(same as above)
0239	DL-Valine	$C_5H_{11}NO_2$	2-aminoisovaleric acid
0240	L-Valine	$C_5H_{11}NO_2$	(same as above)
0241	Vitamin A	$C_{20}H_{30}O$	retinol; vitamin A alcohol
0242	Vitamin A Acetate	$C_{22}H_{32}O_2$	retinyl acetate; vitamin A acetate
0243	Vitamin A Palmitate	$C_{36}H_{60}O_2$	retinyl palmitate; vitamin A palmitate
0244	Vitamin B_{12}	$C_{63}H_{88}CoN_{14}O_{14}P$	cyanocobalamin; LLD factor; extrinsic factor; antipernicious anemia principle
0245	Vitamin D_2	$C_{28}H_{44}O$	calciferol; ergocalciferol
0246	Vitamin D_3	$C_{27}H_{44}O$	activated 7-dehydrocholesterol; cholecalciferol
0247	Zinc Chloride	$ZnCl_2$	butter of zinc
0248	Zinc Gluconate	$Zn(C_6H_{11}O_7)_2$	
0249	Zinc Oxide	ZnO	flowers of zinc
0250	Zinc Stearate		
0251	Zinc Sulfate	$ZnSO_4$, or $ZnSO_4.H_2O$	

APPENDIX A

Part II -- Partial Listing of Substances Presumed to be GRAS by FDA but not Published

Sub. No.	Common Name of Substance
0252	Amines, Filming
0253	Amino Tri(methylene phosphoric acid) Sodium Salt
0254	Benzoyl Peroxide
0255	Borax
0256	Bouillon, Vegetable, Smoked
0257	Brandy
0258	Butter Fat, Enzyme-modified, w/ added Butyric Acid
0259	Calcium Hypophosphite
0260	Calcium Stearate
0261	Candelilla Was
0262	Carbon (if not removed)
0263	Carboxymethyl Cellulose
0264	Carboxymethyl Hydroxyethyl Cellulose
0265	Cellulose (pure and regenerated)
0266	Chlorophyll
0267	Clay, Attapulgite (if not removed)
0268	Collagen, Avitene
0269	Corn Mint Oil (Mentha Arvenis Oil)
0270	Corn Syrup
0271	Dextrose
0272	Diatomaceous Earth (if not removed)
0273	Enzymes, Bacterial (if not inactivated)
0274	Enzymes, Proteolytic (if not inactivated)
0275	Ferrous Citrate
0276	Ferrocyanide Salts
0277	Fullers Earth (if not removed)
0278	Glucono-delta Lactone
0279	Gluten, Corn
0280	Glycerin
0281	Glycerol Lactopalmitate
0282	Gums, Vegetable

Sub. No.	Common Name of Substance
0283	Hesperidin Complex
0284	Iron Citrate
0285	Isopropyl Citrate(s)
0286	Lecithin, Modified w/ Benzoyl Peroxide
0287	Lecithin, Modified w/ Hydrogen Peroxide
0288	Lignin
0289	Liver Fractions
0290	Magnesium Gluconate
0291	Malt Syrup
0292	Methylpolysilicone
0293	Milk Powder, Whole, Enzyme-modified
0294	Mono- and Diglycerides, Sodium Sulfoacetate Derivatives of
0295	Oiticia Oil
0296	Pepsin (if not inactivated)
0297	Peptone (Pepsin-modified Soybean Protein; Brewers' Peptone)
0298	Piperazine Dihydrochloride
0299	Potassium Bromate
0300	Potassium Gluconate
0301	Potassium Hypophosphate
0302	Potassium Hypophosphite
0303	Potassium Metaphosphate
0304	Potassium Phosphate, Monobasic
0305	Potassium Phosphate, Tribasic
0306	Potassium Polymetaphosphate
0307	Potassium Pyrophosphate
0308	Potassium Tripolyphosphate
0309	Propylene Glycol Monostearate
0310	Protein, Animal, Hydrolyzed
0311	Protein, Vegetable, Hydrolyzed
0312	Rutin
0313	Sausage Casings (HCl + Cellulose Fibers)
0314	Silver-Silver Dragees
0315	Sodium Acid Citrate
0316	Sodium Chlorite

Sub. No.	Common Name of Substance
0317	Sodium Erythorbate (Sodium Isoascorbate)
0318	Sodium Fluoride
0319	Sodium Hypochlorite
0320	Sodium Hypophosphite
0321	Sodium Metasilicate
0322	Sodium Oleate
0323	Sodium Zinc Metasilicate
0324	Soya Fatty Acid Amine, Ethoxylated
0325	Starch, Modified
0326	Starter Distillate
0327	Stearyl Alcohol, Plus Beeswax
0328	Sucrose
0329	Sulfites, Strong Alkali
0330	Tannic Acid
0331	Vitamin B Complex and Syrup
0332	Wax, Shellac
0333	Yeasts
0334	Zein, Powder

EXHIBIT 10

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

APPENDIX B--Food Categories*

1. Baked Goods, Baking Mixes--includes bread, plain rolls, buns, muffins, biscuits, cornbread, cookies, etc.

2. Breakfast Cereals--includes all cooked, or ready-to-eat, or uncooked cereals

3. Other Grain Products, Pastas--includes rice, popped corn, macaroni, spaghetti, noodles, etc.

4. Fats and Oils--includes table fats (butter, margarine), lard, salad dressings, cooking fats and oils, etc.

5. Milk, Milk Products, Misc. Products--includes whole, skim, dried, evaporated, processed milk, chocolate milk, milk-based diet beverages, mixes, etc.

6. Cheese--all cheeses

7. Frozen Dairy Desserts, Mixes--includes ice cream, ice milk, milk sherbets, milk-based desserts

8. Processed Fruits, Juices and Drinks--includes citrus fruits, citrus fruit juices, related citrus products, dried fruit, dried fruit dishes, other non-citrus fruits, juices, drinks, ades, punches, etc.

9. Fruit Ices, Water Ices--includes these two products and other similar mixtures mainly sugar

10. Meat Products--all meat products and mixtures mainly meat

11. Poultry Products--all poultry products and mixtures mainly poultry

12. Eggs, Egg Products--all egg products and mixtures mainly egg

13. Fish Products--all fish products and mixtures mainly fish

14. Processed Vegetables, Juices--includes all such products

15. Condiments, Relishes, Salt Substitutes--includes olives, pickles, etc.

16. Candy--all candy

17. Sugar, Confections--all such products

18. Jams, Jellies, Sweet Spreads--all such products

19. Sweet Sauces, Toppings, Syrups--all such products, including honey and molasses

20. Gelatins, Puddings, Fillings--all such products

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*These food categories and the accompanying questionnaire form are not to be used for reporting on GRAS substances used in baby and infant foods. Contact the GRAS Review Office (see address on page 5 of General Information section) if you need a special set of survey materials for this purpose.

21. Soups, Soup Mixes--all such products

22. Snack Foods--includes most such products, except popped corn (category 3) and nuts (category 25)

23. Beverages-Type I--includes non-alcoholic beverages other than milk and fruit juices, such as tea, coffee, soft drinks, fruit flavored sodas, diet drints, gelatin drinks, drink mixes, high-electrolyte drinks, etc.

24. Beverages-Type II--all alcoholic beverages and drink mixes used with alcoholic beverages

25. Nuts, Nut Products--all such products, including peanuts

26. Reconstituted Vegetable Proteins--all such products

27. Gravies, Sauces--all such products and mixes, except sweet sauces (category 19)

28. Dairy Products Analogs--includes whipped toppings, coffee whiteners, etc.

EXHIBIT II

BABY FOODS

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

APPENDIX B--Baby and Infant Food Categories

1. Baked Goods--includes teething biscuits, baked finger foods, etc.
2. Cereals--includes all ready-to-eat cooked or uncooked cereals
3. Formula Products--includes milks, milk derivatives (whey and caseinates), soy- and meat-based formulations, etc.
4. Processed Fruits, Juices, Drinks--includes all such products
5. Meat Products--includes strained, chopped, or cubed products
6. Poultry Products--all poultry products and products mainly poultry
7. Eggs, Egg Products--all egg products and mixtures mainly egg
8. Fish Products--all fish products and mixtures mainly fish
9. Processed Vegetables--includes strained and chopped products
10. Puddings, Custards, etc.--all such products
11. Soups, Soup Mixes--all such products
12. High Meat Dinners, Cheese Foods--all such products
13. Combination Dinners (Meat and vegetables)--all such products

EXHIBIT 12

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

APPENDIX C--Classification of GRAS Substances by Technical Effect

Technical Effect Code	Technical Effect Group
01	Anticaking agents, free-flow agents
02	Antioxidants
03	Colors, coloring adjuncts (including color stabilizers, color fixatives, color-retention agents, etc.)
04	Curing, pickling agents
05	Dough conditioners (including yeast foods)
06	Drying agents
07	Emulsifiers (see also Group 27) ; emulsifier salts
08	Enzymes
09	Firming agents
10	Flavor enhancers
11	Flavoring agents, adjuvants
12	Flour-treating agents (including bleaching and maturing agents)
13	Formulation aids (including carriers, binders, fillers, plasticizers, film-formers, tabletting aids, etc.)
14	Fumigants
15	Humectants, moisture-retention agents, anti-dusting agents
16	Leavening agents
17	Lubricants, release agents
18	Non-nutritive sweeteners
19	Nutrient supplements
20	pH Control agents (including buffers, acids, alkalies, neutralizing agents)

Technical Effect Code	Technical Effect Group
21	Preservatives (including antimicrobial agents, fungistats, mold and rope inhibitors, etc.)
22	Processing aids (including clarifying agents, clouding agents, catalysts, flocculents, filter aids, etc.)
23	Propellants, aerating agents, gases
24	Sequestrants
25	Solvents, vehicles
26	Stabilizers, thickeners (including suspending and bodying agents, setting agents, gelling agents, bulking agents, etc.)
27	Surface-active agents (other than emulsifiers [see Group 07], including solubilizing agents, dispersants, detergents, wetting agents, rehydration enhancers, whipping agents, foaming agents, defoaming agents, etc.)
28	Surface-finishing agents (including glazes, polishes, waxes, protective coatings)
29	Synergists
30	Texturizers
00	(To be named by respondent ; attach explanatory note to questionnaire if this category is used.)

EXHIBIT 13

CAUTION--READ INSTRUCTIONS BEFORE COMPLETING QUESTIONNAIRE

OMB No. 57-S71003 Approval Expires 2-29-72

1-4 Company Code **7014**

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

1. SUBSTANCE REPORTED

5-8 Sub. No. 0022 9-11 Card Type 001

ASCORBIC ACID
Common Name of Substance

2. NATURE OF RESPONDENT'S INTEREST IN SUBSTANCE

Check one or more boxes:

12 ☐ Manufactures substance

13 ☐ Distributes substance (i.e., buys and resells substance)

14 ☐ Sells substance to food manufacturers, processors, or distributors

15 ☐ Sells substance directly to individual or institutional consumer

16 ☐ Uses substance in preparing a premix, blend, or subassembly for sale

17 ☒ Adds substance directly to food or uses substance in food processing

NOTE: If you checked boxes 15, 16, or 17 above, then you must also report your annual poundage in Question 3. If you did not check boxes 15, 16, or 17, skip Question 3 entirely and proceed directly to Question 4 on page 2.

3. ANNUAL POUNDAGE (Answer this question only if you checked boxes 15, 16, or 17 in Question 2)

1960		1970	
☐	A	☐	0 lbs.
☐	B	☐	1 - < 100 lbs.
☐	C	☐	100 - < 1000 lbs.
☐	D	☐	1000 - < 10,000 lbs.
☐	E	☐	10,000 - < 100,000 lbs.
☐	F	☐	100,000 - < 500,000 lbs.
☒	G	☐	500,000 - < 1,000,000 lbs.
☐	H	☒	> 1,000,000 lbs.
18		19	

Check the appropriate box in each column at the left to indicate the range in which your annual poundage would fall. Include only the amount of the substance that you sold directly to the individual or institutional consumer; or used in preparing a premix, blend, or subassembly for sale; or added directly to food or used in food processing. If you used the substance in 1960, one of the boxes in the 1960 column must be checked, even if you have to make a very rough estimate. Do not include in your poundage report any amount of the substance that you sold as such to food manufacturers, processors, or distributors.

20-22 ☐☐☐ Enter nearest multiple of 1,000,000 if 1960 poundage > 1,000,000 lbs.

23-25 001 Enter nearest multiple of 1,000,000 if 1970 poundage > 1,000,000 lbs.

26-35 0001300000 If you have the data available, enter in the boxes at the left the actual poundage figure (±10%) for 1970.

Report on ASCORBIC ACID

4. SPECIFICATIONS, IDENTITY, PURITY

Check one or more boxes:

36 [X] Food Chemicals Codex (FCC)
37 [ ] FAO/WHO
38 [ ] National Formulary (NF)
39 [X] United States Pharmacopeia (USP)
40 [ ] American Chemical Society (ACS)
41 [X] Supplier specifications
42 [ ] Other (data attached)
43 [ ] No explicit specifications

5. FURTHER INFORMATION ON COMPOSITION

Check one or more boxes:

44 [X] Respondent has further detailed information on composition, trace constituents, etc.
45 [X] Such information is attached
46 [ ] Respondent has no such information

6. KNOWN EFFECTS OF PROCESSING, STORAGE

Check appropriate boxes:

47 [X] Substance is known to be altered or lost in processing or storage
48 [X] Information is attached explaining path and extent of loss
49 [X] Degradation or reaction products are known
50 [X] Information is attached identifying such degradation or reaction products

7. SAFETY INFORMATION

7a. First use in foods

51-54 [1942] Enter year your firm first used substance or sold substance for use in foods or in food processing. Enter 0000 if year is not known.

7b. Reports on the following types of unpublished studies are attached:

55 [X] Animal studies
56 [ ] Epidemiological or controlled human studies
57 [ ] Studies of accidents or industrial exposure
58 [X] Other (including reports of natural occurrence or common use of substance in foods)

7c. Bibliography

59 [X] Bibliography of published reports (animal or human studies; epidemiology; accidents or industrial exposure; natural occurrence and common use; etc.) is attached

7d. Other information relevant to safety

60 [ ] Outline of manufacturing process is attached
61 [ ] Other pertinent information that has not been specifically requested is attached

62-70 [ ] (These boxes for office use only)

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

Company Code 7014 (1-4) Sub. No. 0022 (5-8) Report on ASCORBIC ACID

Card Type (9 10 11)	Food Category	Tech Effect Code (12 13)	IR (14)	Level, % Usual (15 16 17 18 19 20 21)	Level, % Maximum (22 23 24 25 26 27 28)	Specific Food in Which Maximum Level Used (29 30 31 32 33 34 35 36 37 38 39 40 41 42)	% of Total Use (43 44 45)
0 1 1	1-Baked Goods	05	C	0.02000	0.02000	WHITE BREAD	017
0 1 2							
0 1 3							
0 2 1	2-Breakfast Cereals	19	A	0.05000	0.07600	CORN FLAKES	045
0 2 2							
0 2 3							
0 3 1	3-Other Grain Products, Pastas, etc.						
0 3 2							
0 3 3							
0 4 1	4-Fats and Oils						
0 4 2							
0 4 3							
0 5 1	5-Milk, Milk Products						
0 5 2							
0 5 3							
0 6 1	6-Cheese						
0 6 2							
0 6 3							
0 7 1	7-Frozen Dairy Desserts, Mixes						
0 7 2							
0 7 3							
0 8 1	8-Processed Fruits, Juices, Drinks, etc.	02	B	0.03000	0.04400	FROZEN PEACHES	021
0 8 2		19	A	0.02000	0.03700	FRUIT DRINK	
0 8 3							
9 10 11		12 13	14	15 16 17 18 19 20 21	22 23 24 25 26 27 28	29 30 31 32 33 34 35 36 37 38 39 40 41 42	43 44 45

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

Company Code 1-4 **7014** 5-8 Sub. No. 0022 Report on ASCORBIC ACID

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	IR 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
0	9	1	9-Fruit Ices, Water Ices																																		
0	9	2																																		X	X
0	9	3																																			
1	0	1	10-Meat Products																																		
1	0	2																																		X	X
1	0	3																																			
1	1	1	11-Poultry Products																																		
1	1	2																																		X	X
1	1	3																																			
1	2	1	12-Eggs, Egg Products																																		
1	2	2																																		X	X
1	2	3																																			
1	3	1	13-Fish Products	0	2	C	0	0	2	5	0	0	0	0	2	0	0	0	0	0	F	R	O	Z	E	N		F	I	S	H	D	I	P	0	0	6
1	3	2																																		X	X
1	3	3																																			
1	4	1	14-Processed Vegetables, Juices																																		
1	4	2																																		X	X
1	4	3																																			
1	5	1	15-Condiments, Relishes, Salt Substitutes																																		
1	5	2																																		X	X
1	5	3																																			
1	6	1	16-Candy																																		
1	6	2																																		X	X
1	6	3																																			
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

1-4 Company Code **7014** 5-8 Sub. No. **0022** Report on ASCORBIC ACID

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	IR 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
1	7	1	17-Sugar, Confections																																	
1	7	2																																		X
1	7	3																																		
1	8	1	18-Jams, Jellies, Sweet Spreads																																	
1	8	2																																		X
1	8	3																																		
1	9	1	19-Toppings, Sweet Sauces, Syrups																																	
1	9	2																																		X
1	9	3																																		
2	0	1	20-Gelatins, Puddings, Fillings																																	
2	0	2																																		X
2	0	3																																		
2	1	1	21-Soups, Soup Mixes																																	
2	1	2																																		X
2	1	3																																		
2	2	1	22-Snack Foods																																	
2	2	2																																		X
2	2	3																																		
2	3	1	23-Beverages, Type I	19	B	0	0	.	0	1	8	0	0	0	0	.	0	4	0	0	0	SOFT DRINK MIX													0	0	2
2	3	2																																		X
2	3	3																																		
2	4	1	24-Beverages, Type II (Alcoholic)																																	
2	4	2																																		X
2	4	3																																		
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

NAS-NRC Food Protection Committee GRAS Survey

8. USAGE REPORT

1-4 Company Code **7014** 5-8 Sub. No. 0022 Report on ASCORBIC ACID

Card Type (9 10 11)	Food Category	Tech Effect Code (12 13)	IR (14)	Level, % Usual (15–21)	Level, % Maximum (22–28)	Specific Food in Which Maximum Level Used (29–42)	% of Total Use (43 44 45)
2 5 1	25-Nuts, Nut Products						
2 5 2							
2 5 3							
2 6 1	26-Vegetable Proteins, Reconstituted	0 2	B	0 0 . 2 5 0 0 0	0 0 . 5 0 0 0 0	CHILI MIX	0 0 9
2 6 2							
2 6 3							
2 7 1	27-Gravies, Sauces, Mixes						
2 7 2							
2 7 3							
2 8 1	28-Dairy Products Analogs						
2 8 2							
2 8 3							

EXHIBIT 14

BABY FOODS

CAUTION--READ INSTRUCTIONS BEFORE COMPLETING QUESTIONNAIRE

Survey of Substances Generally Recognized as Safe (GRAS)

Food Protection Committee
NATIONAL ACADEMY OF SCIENCES--NATIONAL RESEARCH COUNCIL

OMB No. 57-S71003
Approval Expires 2-29-72

1-4 Company Code: 8008

1. SUBSTANCE REPORTED

5-8 Sub. No.: 0022

9-11 Card Type: 101

ASCORBIC ACID
Common Name of Substance

2. NATURE OF RESPONDENT'S INTEREST IN SUBSTANCE

Check one or more boxes:

12 ☐ Manufactures substance

13 ☐ Distributes substance (i.e., buys and resells substance)

14 ☐ Sells substance to food manufacturers, processors, or distributors

15 ☐ Sells substance directly to individual or institutional consumer

16 ☐ Uses substance in preparing a premix, blend, or subassembly for sale

17 ☒ Adds substance directly to food or uses substance in food processing

NOTE: If you checked boxes 15, 16, or 17 above, then you must also report your annual poundage in Question 3. If you did not check boxes 15, 16, or 17, skip Question 3 entirely and proceed directly to Question 4 on page 2.

3. ANNUAL POUNDAGE (Answer this question only if you checked boxes 15, 16, or 17 in Question 2)

Check the appropriate box in each column at the left to indicate the range in which your annual poundage would fall. Include only the amount of the substance that you sold directly to the individual or institutional consumer; or used in preparing a premix, blend, or subassembly for sale; or added directly to food or used in food processing. If you used the substance in 1960, one of the boxes in the 1960 column must be checked, even if you have to make a very rough estimate. Do not include in your poundage report any amount of the substance that you sold as such to food manufacturers, processors, or distributors.

1960		1970	
☐	A	☐	0 lbs.
☐	B	☐	1 - < 100 lbs.
☐	C	☐	100 - < 1000 lbs.
☐	D	☐	1000 - < 10,000 lbs.
☐	E	☐	10,000 - < 100,000 lbs.
☐	F	☐	100,000 - < 500,000 lbs.
☒	G	☐	500,000 - < 1,000,000 lbs.
☐	H	☒	> 1,000,000 lbs.
18		19	

20-22 ☐☐☐ Enter nearest multiple of 1,000,000 if 1960 poundage > 1,000,000 lbs.

23-25 001 Enter nearest multiple of 1,000,000 if 1970 poundage > 1,000,000 lbs.

26-35 0001250000 If you have the data available, enter in the boxes at the left the actual poundage figure (±10%) for 1970.

BABY FOODS

Company Code 8008

Report on ASCORBIC ACID

Sub. No. 0022

Check one or more boxes:

4. SPECIFICATIONS, IDENTITY, PURITY

36 [X] Food Chemicals Codex (FCC)
37 [ ] FAO/WHO
38 [ ] National Formulary (NF)
39 [X] United States Pharmacopeia (USP)
40 [ ] American Chemical Society (ACS)
41 [ ] Supplier specifications
42 [ ] Other (data attached)
43 [ ] No explicit specifications

Check one or more boxes:

5. FURTHER INFORMATION ON COMPOSITION

44 [ ] Respondent has further detailed information on composition, trace constituents, etc.
45 [ ] Such information is attached
46 [X] Respondent has no such information

Check appropriate boxes:

6. KNOWN EFFECTS OF PROCESSING, STORAGE

47 [ ] Substance is known to be altered or lost in processing or storage
48 [ ] Information is attached explaining path and extent of loss
49 [ ] Degradation or reaction products are known
50 [ ] Information is attached identifying such degradation or reaction products

7. SAFETY INFORMATION

7a. First use in foods

51-54 [1952] Enter year your firm first used substance or sold substance for use in foods or in food processing. Enter 0000 if year is not known.

7b. Reports on the following types of unpublished studies are attached:

55 [ ] Animal studies
56 [X] Epidemiological or controlled human studies
57 [ ] Studies of accidents or industrial exposure
58 [ ] Other (including reports of natural occurrence or common use of substance in foods)

7c. Bibliography

59 [X] Bibliography of published reports (animal or human studies; epidemiology; accidents or industrial exposure; natural occurrence and common use; etc.) is attached

7d. Other information relevant to safety

60 [ ] Outline of manufacturing process is attached
61 [ ] Other pertinent information that has not been specifically requested is attached

62-70 [ ] (These boxes for office use only)

National Survey of Substances GRAS

8. USAGE REPORT BABY FOODS

Company Code 8008 (1-4) Sub. No. 0022 (5-8) Report on ASCORBIC ACID

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	IR 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
8	1	1	1-Baked Goods																																	
8	1	2																																		X
8	1	3																																		X
8	2	1	2-Cereals																																	
8	2	2																																		X
8	2	3																																		X
8	3	1	3-Formula Products	1	9	A	0	0	0	1	5	0	0	0	0	0	2	1	0	0	S	O	Y	-	B	A	S	E	D		F	O	R	M	0	8	5
8	3	2																																		X
8	3	3																																		X
8	4	1	4-Processed Fruits, Juices, Drinks																																	
8	4	2																																		X
8	4	3																																		X
8	5	1	5-Meat Products																																	
8	5	2																																		X
8	5	3																																		X
8	6	1	6-Poultry Products																																	
8	6	2																																		X
8	6	3																																		X
8	7	1	7-Eggs, Egg Products																																	
8	7	2																																		X
8	7	3																																		X
8	8	1	8-Fish Products																																	
8	8	2																																		X
8	8	3																																		X
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

National Survey of Substances GRAS

8. USAGE REPORT BABY FOODS

Company Code (1-4) 8008 Sub. No. (5-8) 0022 Report on ASCORBIC ACID Page 4

Card Type 9	10	11	Food Category	Tech Effect Code 12	13	I R 14	Level, % Usual 15	16	17	18	19	20	21	Level, % Maximum 22	23	24	25	26	27	28	Specific Food in Which Maximum Level Used 29	30	31	32	33	34	35	36	37	38	39	40	41	42	% of Total Use 43	44	45
8	9	1	9-Processed Vegetables																																	
8	9	2																																		X
8	9	3																																		X
9	0	1	10-Puddings, Custards, etc.	0	2	C	0	0	0	3	5	0	0	0	0	0	5	0	0	0	R	I	C	E		P	U	D	D	I	N	G			0	1	5
9	0	2																																		X
9	0	3																																		X
9	1	1	11-Soups, Soup Mixes																																	
9	1	2																																		X
9	1	3																																		X
9	2	1	12-High Meat Dinners, Cheese Foods																																	
9	2	2																																		X
9	2	3																																		X
9	3	1	13-Combination Dinners																																	
9	3	2																																		X
9	3	3																																		X
																																				X
																																				X
																																				X
																																				X
9	10	11		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45

EXHIBIT 15

FLAVOR AND EXTRACT MANUFACTURERS' ASSOCIATION
OF THE UNITED STATES

1001 CONNECTICUT AVENUE N.W.
WASHINGTON, D. C. 20036
202 659-4660

DANIEL R. THOMPSON
ATTORNEY & EXECUTIVE SECRETARY

At the time of passage of the Food Additives Amendment of 1958, the Flavor and Extract Manufacturers' Association (FEMA) conducted a comprehensive survey of the use in food of all known flavoring ingredients. This survey was a major undertaking, requiring several years, because flavoring ingredients account for more than half of all the substances intentionally used in food. The results were used to establish legal status and define good manufacturing practice for more than 1,100 substances. This was noted (1) by the publication of lists of substances generally recognized as safe (GRAS) by qualified experts and their criteria of judgment, and (2) by the publication in the "Federal Register" of regulations covering most flavoring ingredients. This successful program attracted favorable attention nationally and internationally. An essential ingredient in this success was the strong support of those firms in the food industry who were invited to participate.

As recent events have emphasized, the GRAS status of a substance is not a permanent condition, but requires periodic and systematic review. Technological advances have added a large number of new flavoring ingredients. Consumer acceptance factors have changed. Other ingredients, once used, have been dropped from use for a variety of reasons. Thus, a regathering of data, and review of previous judgments are now necessary.

Consequently, more than three years ago, the FEMA decided to conduct during 1971 a new survey of the use of flavors in foods. We recognize the enormous effort this will require, but we believe it is mandatory to

support, maintain, and extend the status achieved for flavoring ingredients by the previous survey and FEMA's program to date. While it is proper for the flavoring industry to take the initiative in this effort, it must be emphasized that the entire food industry uses flavors--natural or synthetic--and benefits from the survey results. Problems of safety, and abuse of good manufacturing practice, are not confined to synthetic flavors; the majority of cases to date have involved natural flavors.

As you may know, the FDA has been instructed by President Nixon to conduct such a review of GRAS substances. We fully expect the final, tabulated results of this FEMA survey to be made available to the FDA to assist in their assigned task. As you know, the National Academy of Sciences/National Research Council is conducting a review of GRAS substances which are not flavors for the FDA. You will be receiving a copy of that survey soon. The relationship between the two surveys is explained in the instructions for the FEMA survey which accompany the survey form.

For reasons to be developed fully in later correspondence, this survey must cover every firm in the flavoring industry; and also a large sample of representatives of the major food processing firms.

We will, of course, take elaborate precautions to preserve the confidentiality of each firm's individual reply. We wish to mention that to date we have had no unauthorized disclosure or abuse of information from our first survey.

We will be sending the instructions and the survey form to your attention within two weeks. Should you have any questions concerning it, please contact Mr. Daniel R. Thompson, the FEMA Attorney and Exec. Sec., 1001 Connecticut Avenue, N.W., Suite 1120, Washington, D.C., Telephone (202) 659-4660.

Sincerely,

R. L. Hall
President

RLH;kee

EXHIBIT 16

FLAVOR AND EXTRACT MANUFACTURERS' ASSOCIATION
OF THE UNITED STATES

1001 CONNECTICUT AVENUE N.W.
WASHINGTON, D. C. 20036
202 659-4660

DANIEL R. THOMPSON
ATTORNEY & EXECUTIVE SECRETARY

June 3, 1971

Dear Sir:

Enclosed please find a copy of the Instructions for Completing the Second F.E.M.A. Flavor Additive Survey. Please complete the survey and return it to me not later than October 1, 1971.

Also enclosed is a confidential receipt for the survey. Please complete the receipt form and return it to me immediately.

Should you have any questions concerning the survey or the instructions, please contact the undersigned or Mr. Roger D. Middlekauff of this office.

Sincerely yours,

Daniel R. Thompson
Attorney & Exec. Sec.

DRT:kee

Enclosures

RETURN RECEIPT

EXHIBIT 17

F.E.M.A. FLAVOR ADDITIVE SURVEY

C O N F I D E N T I A L

TO: Flavor and Extract Manufacturers' Association
of the United States

Attention: D. R. Thompson
Attorney & Exec. Sec.

This is to confirm that the respondent, whose code number is _____, has received the set of GRAS survey materials. It is expected that the person in this firm who will be assigned responsibility for completing the questionnaire - and whom the F.E.M.A. may contact in the event of questions - is:

Name: _____

Title: _____

Address: _____

_____

_____

Telephone: _____ Date: _____

* * * * * *

Please return this form at once in the envelope marked "Confidential" which is attached. If the envelope is lost, or for some other reason cannot be used, return the form in a plain envelope marked "Confidential" to the address given below.

Mr. Daniel R. Thompson
Attorney & Exec. Sec.
Flavor & Extract Manufacturers' Association
1001 Connecticut Avenue, N.W.
Suite 1120
Washington, D.C. 20036

EXHIBIT 18

INSTRUCTIONS FOR COMPLETING
THE SECOND F.E.M.A. FLAVOR ADDITIVE SURVEY

This survey is similar in principle to that conducted by the FEMA in 1958-60. By following carefully these instructions, your information will be correctly derived and expressed on the same basis used by all other firms in their replies.

The confidentiality of the questionnaires will be assured by the fact that they are identified only by a randomly assigned code number, the key to which is held only by the FEMA Attorney and Executive Secretary's office. The results you report on your copy will be key punched by an outside EDP service bureau. The results of all replies will be tabulated, summarized, and analyzed by the service bureau. Only final summaries, in which the identities of individual replies are completely lost, will be published. In all these procedures, we are simply following past practice, supplemented with a number of mechanical improvements.

SPECIAL INSTRUCTIONS: Please note that this questionnaire does not provide columns in which to report levels of flavoring ingredients used in chewing gum or hard candy. The National Association of Chewing Gum Manufacturers (NACGM) and the National Confectioners Association (NCA) will separately survey their memberships and the flavor suppliers of their membership, with respect to these two food categories. Their data will be combined with that from this questionnaire in the final summary. Therefore include under "Soft Candy" all candy usages, such as taffy and specialty candies, that will not be covered in the NCA survey.

This questionnaire is aimed at two principal groups of firms. It is intended to be completed by those food manufacturers who themselves use some individual flavoring ingredients. "Flavoring ingredients," as defined herein, refers either to single chemical substances, such as vanillin, methyl salicylate, or maltol, or to naturally occurring mixtures known by their common or botanical names. Examples of these are the natural spices, such as cinnamon or cloves, or their essential oils, oleoresins, extracts, solid extracts, etc. Most manufacturers of finished foods will use only a few flavoring ingredients according to this definition, and will rely principally upon blended flavors of whose exact composition they are not usually aware. In order that our data be accurate, it is important that food manufacturers disregard their use of purchased, blended flavors and report only on uses of flavoring ingredients as defined above. If a flavor

ingredient loses its individual identity in a mixture, i.e., in a blended flavor or mixture of other food components to which you have added it, it should be reported. [Processors and manufacturers should also report those flavoring ingredients which they place in retail packages for sale to the consumer.] The addition of flavoring mixtures (blended flavors) to a food should not be reported in this survey unless the manufacturer himself formulated or blended those mixtures. EXAMPLES:

1. An ice cream manufacturer who adds vanillin, as such, to ice cream mix should report it.
2. An ice cream manufacturer who uses a pure vanilla extract should report it.
3. An ice cream manufacturer who uses blended, imitation vanilla flavor or a vanilla-vanillin extract should not report it.
4. But, the manufacturer of the vanilla-vanillin extract, or imitation flavor, should report the use levels he recommends (Columns F), and the volumes of the flavoring ingredients he uses (Column G) in these blended flavors.
5. A manufacturer of candy or beverages who uses No. 2,444, ethyl methyl phenylglycidate (Aldehyde C-16) in a food, and also uses a blended flavor in the same food, should report only the levels and use of No. 2,444. [If he believes he is relying primarily on No. 2,444 he should indicate that it is dominant (D) in Column D; if it is used only as a minor or trace ingredient, indicated by a (T); etc.]

The second major group of manufacturers intended to be included in this survey are the flavor manufacturers themselves. In general, most firms in this category sell blended flavors, and should report the uses either as they recommend them or as they know them to be [used]. Again, they should not report sales of individual flavoring ingredients sold as such, since these ingredients have not yet lost their identity and will be picked up in our survey by a manufacturer later in the processing chain. Instead, flavor manufacturers should report recommended or known levels of use, volume of use, etc., for those ingredients which they themselves commit to a blended flavor or to a finished food or food ingredient mixture.

We recognize that there is a degree of uncertainty here, due to the fact that the flavor manufacturer cannot know with certainty how his blended flavors will in fact be used, and whether or not they will be used according to his recommendations. On the other hand, the food manufacturer will often use blended flavors without knowing their exact composition. To resolve this uncertainty

unambiguously, however, would be a task so large and complex that it cannot readily be accomplished except in the limited case of chewing gum and hard candy, where we will enjoy the indispensable collaboration of the two trade associations most directly involved.

NAS/NRC Survey

Please retain a copy of your response to this F.E.M.A. survey. You will later receive a survey form from the National Academy of Sciences/National Research Council covering GRAS substances which are not flavors, including some substances such as BHA, ascorbic acid, etc., also included on this F.E.M.A. survey. When you respond to the NAS/NRC survey, please exclude flavor uses, including the poundage figures you report on this F.E.M.A. survey.

DETAILED INSTRUCTIONS

PLEASE WRITE LEGIBLY

Column A - FEMA Number, Primary Name, and Secondary Names
This column follows completely the pattern established in prior publications, and extends it to a number of new substances which have appeared in the "Federal Register" or on FEMA GRAS lists, since the publication of the original listing. Please list any secondary names or commercial names now in use which are not shown on this list if you are certain they apply to the substances listed by its primary name.

This survey is intended to reflect usage of all flavoring materials and flavoring adjuncts used in the United States. It therefore contains materials not originally declared GRAS by the FEMA. The Food Additive Amendment does allow materials to be declared GRAS by qualified experts and it is important that this survey reflect current flavor usage. Enter at the end of the survey all materials considered GRAS but not appearing on the survey.

The FEMA's choice of nomenclature, particularly that relating to the primary name, has been explained previously [e.g., Hall and Oser, Recent Progress in the Consideration of

Flavoring Ingredients Under the Food Additives Amendment. III. GRAS Substances. Food Technology, Volume 19, No. 2, Part 2 (February, 1965)]. With the exception of the "iso-" compounds, it corresponds to FDA usage in the "Federal Register". It relies largely on practices observed in "Chemical Abstracts", and uses as the primary name the systematic (non-trivial) name in most common use.* Where a substance, such as Aldehyde C-16, is widely known by that traditional, but trivial name, that common name becomes the first of the secondary names in order that the primary name may be scientifically correct.

Please note that the FEMA does not use the prefix normal or n- to denote straight chain isomers. Instead, it follows generally accepted practice in which, when no prefix is used, the straight chain isomer is understood. The appropriate prefix is used to denote secondary, iso-, and tertiary isomers.

At the end of the survey you will find blank pages for the addition of flavoring materials not listed. This survey should only include flavoring materials used in the United States, adjuncts essential to flavor composition and adjuncts, already recognized as GRAS or permitted food additives, whose use in flavors is somewhat different from other food uses. Examples are BHA as an antioxidant, ethylene oxide as a treatment to reduce or eliminate bacterial contamination of spices, gum acacia, cocoa, etc. In considering ethylene oxide and similar treatments, enter the quantity used per defined unit of other ingredient. In considering solvents used for extraction, and removed, list the amount of solvent residue in the final product.

Materials such as carotene, Oleoresin Paprika, beet powder, etc. are generally used for color and are covered under the Color Additive Amendment. Unless their use with flavors does not conform to the requirements of the Color Additive Amendment or their usage is primarily for flavor and color is incidental (ex. Saffron) their usage should not be included in this survey.

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*Footnote

To assist in finding the primary name you may want to refer to one of the following:

1. NAS/NRC booklet on Food Additives
2. Fritzsche Brothers booklet on GRAS flavoring materials.
3. Givaudan Index
4. Merck Index
5. Arctander, S., Perfume and Flavor Chemicals, S. Arctander, Montclair, New Jersey, (1969)

We suggest that you also check obvious alternate GRAS listings, e.g., clary sage under "c" and "s".

Bay or Laurel leaves; use as synonym under 2124, Sweet Bay. For the purposes of this survey and normal flavor usage, Chillies should be considered as Capsicum.

Column B - Chemical Formula (If a Known Single Substance)
The structural formula is occasionally necessary to assist in identifying unambiguously the material indicated by the primary name. If you are quite sure that a correction to a structural formula is necessary, please make it. Be certain, however, that you are actually proposing a correction and are not reporting the use of a different substance. If the latter is the case, then please report this in one of the blank spaces provided at the end of the form. Trivial names such as "Polylimonene" or "Tripropionine" require chemical structure or descriptive explanations. Commercial mixtures such as "rum ether" or "ethyl oxyhydrate", "oenanthic ether", etc. should adhere to the specifications outlined in the "Chemical Codex" or be entered in the survey clearly indicated as a new substance deviating from industry standards.

Column C - Natural Source
This column applies only to those materials which are single chemical entities. The Association's files, due to the cooperation of many of its members, contain substantial information on natural occurrence, by which we mean occurrence naturally in raw foods or in foods as normally processed for consumption. We would greatly appreciate it, however, if you would indicate in this column (1) any obscure published material which we may have missed, or (2) any unpublished data from your own files or of whose existence elsewhere you may be aware. Such evidence of natural occurrence in foods is of significant supportive value in establishing a history of use and indirectly in arriving at a conclusion of safe levels of use. Quantitative information is particularly valuable. Please give references, or sources of unpublished information, as fully and accurately as possible.

Column D - Flavors in Which Used and Role of Use
In this column, please report the types of flavors in which each ingredient is used and whether, in that type, it plays a dominant (D), modifying (M), or trace (T) role. For example, a single ingredient such as vanillin will be used in vanilla flavors (D), in developed flavors such as caramel or butterscotch (M), and in fruit or berry flavors (T). A different degree of importance, and different levels of use will often be attached to these different flavor types. Table 1 of these instructions provides a suggested classification for flavor types. Only the general heading and not the specific flavor for each type need be entered on the form. The examples listed under each general heading are for your information and convenience in deciding which flavor types your usage fit. If

the three lines in Column D are insufficient for a particular use, use Column H on the right, indicating by lines or letter codes, which use levels entries (Column F) apply to the extra listing in Column H.

TABLE 1

	Examples
BLENDS	Ginger Ale Kola Orange-Pineapple Tutti-frutti
COCONUT	
COOKED, BROWN AND ROASTED	Butterscotch Caramel Cocoa Maple Smoke Molasses
FERMENTED	Beer Wine Whiskey Dough
FLORAL	Violet Rose Honey Sen-Sen®
FRUITS-BERRY	Raspberry Strawberry Blackberry Blueberry
FRUITS-CITRUS	Orange Lemon Lime Grapefruit
FRUITS-PIT	Apricot Peach Cherry Prune
FRUITS-PULPY (MISCELLANEOUS)	Apple Banana Melon Pineapple
MEAT (Not Seasonings)	Chicken Ham Pork Lamb
MILK AND DAIRY	Butter Cream Cheddar Cheese Bleu Cheese
MINT-MENTHOL	
NUT	Almond Hazelnut Walnut Pecan
ROOTS	Root Beer Birch Beer Licorice Ginger
SEASONINGS	
SPICES AND HERBS	Cassia Anise Nutmeg Coriander
VANILLA	Cream Soda White Cake Custard
VEGETABLE	Tomato Rhubarb Potato Green Pepper
OTHERS (List)	

Table 1 continued

Adjuncts (indicate type)

Solvent	Buffer	Preservative	Sweetner
Acidulant	Antioxidant	Dietary supplement	Misc.
Emulsifier	Anti-caking	Stabilizer	

Column E - Degree of Importance

The use of this column corresponds exactly to that of the first survey ten years ago. Three degrees of importance are provided, and are to be indicated by the appropriate letter, "A" for essential, "B" for important, and "C" for useful. The definitions of these three categories are given in Table 2 of these instructions.

TABLE 2

ESSENTIAL - A

Here, the flavor simply could not be made without the substance, (e.g., iso-amyl acetate in banana or benzaldehyde in almond).

IMPORTANT - B

This means that without it, an inferior, greatly changed, or considerably more expensive product would result. It is the middle ground between the two extremes.

USEFUL - C

This means just what it says--useful but replaceable. It has value, but something else could be used about as well.

Column F - Concentration of Substance in Parts Per Million (p.p.m.) Introduced into Finished Food

The information requested in these columns is the crux of the whole survey. The language of the law, "generally recognized as safe for its intended use," makes clear that we cannot consider safety apart from the question of the manner and levels of use. As indicated in the column heading, we request that you report here the concentration of the substance in p.p.m. introduced into the finished food. For each food category, we ask for the usual (normal, or rough weighted average) level and the maximum level at which your firm uses that particular ingredient in each flavor type. Please note that the levels will, of course, vary, depending upon the form of the ingredient. For example, a manufacturer will need to use much higher levels of a natural spice than he would of the oleoresin of that spice.

Where an extract of a natural product is listed in the survey include fluid extracts, tinctures, solid extracts, essences, if a category does not exist for these. In Column H

state type, solvent used (where known), and weight of natural product extracted to the final weight of the extractive reported on. This will enable us to correlate varying concentrations of extracts used. Examples would be - Oleoresin Black Pepper obtained in 12% yield from whole spice using acetone as the solvent. S.E. Foenugreek representing a four fold concentration using ethyl alcohol and water as solvents.

There are many concentrations of essential oils in use. For the purposes of this survey it would be advisable to convert usage levels reported to a single fold oil basis. For example, if Oil Orange, Fivefold, is used in drinks at 30 p.p.m., report in survey as 150 p.p.m. of Oil Orange, Singlefold.

Take care, therefore, in reporting your answers to see that you record your data opposite the correct form of the flavoring ingredient. If the correct form you use is not listed, please modify the nomenclature of a closely related form, or report the information in one of the blank spaces at the end of the survey.

The survey is intended to cover a 12-month period of current practice. Therefore your reported use levels should include current formulations sold in small quantities, or sampled, if the use levels in these formulations vary from your normal use levels and you feel they reflect current practice.

Household usage should be reported to the best knowledge of the participant using recommended use levels or recipes.

Accuracy of calculation and reporting of use levels is paramount in importance. Please show the decimal point in every figure reported (see sample sheet). [Report your figures to at least two and no more than three significant figures.] As an aid to calculation, a number of conversion factors are given in Table 3, which can be used to convert easily from quantities expressed in normal formulations to p.p.m. All use levels should be on a wt./wt. basis - not wt./vol.

The value of the final results is completely dependent on your conscientious participation. Overstatements of use are unwise, because they may result in a safety margin apparently too narrow to be acceptable. Conversely, understatement can result in guidelines for good manufacturing practice (or the possibility of some national or international regulation) more restrictive than necessary. If, for a particular ingredient in

a particular flavor type, there are two or more food categories not specifically listed, then use not only Column 8, but any other column unused for that particular application with the interpolation of an appropriate title identifying the food category involved in that particular application.

TABLE 3

To convert -		
Per Cent (%)	to p.p.m., multiply the number of % by	10,000
Hundredths of a per cent (.01%)	to p.p.m., multiply the number of hundredths by	100
Ounces of flavor per 100 lbs. mix	to p.p.m., multiply the number of ounces by	625
Ounces of flavor per 5 gal. mix	to p.p.m., multiply the number of ounces by	1,563
Ounces of flavor per 6 gal. drink	to p.p.m., multiply the number of ounces by	1,302

Column G - Volume Used Per Year

Using an "x" (not a check), please report which of the various volume of use categories per year, in the United States, fits your particular firm for each flavoring ingredient you use. Here we are not concerned with the volume used in each flavor type, but with your total usage of that ingredient in all flavors. As noted earlier, please report here the total of those usages in which you commit the flavoring ingredient to a mixture of other flavoring ingredients or other food components. Do not report sale for further use of the ingredient as such. Make no mark in Column G if you do not use the substance. The value of information from this column is very great, since it is our only direct means of estimating average per capita consumption.

Column H - Additional Information, Including Information on Safety

Please list here any information which you believe would be of any interest or value.

Of first importance, of course, is any unpublished information on toxicology or metabolism, including reports of animal studies.

Please report fully any data of which you or your firm have direct knowledge. Please refer us as explicitly as possible to any information of whose existence you are aware, but which you do not have yourself.

Also useful is any information dealing with results of industrial exposure, questions of identity, or any further points of interest, such as unusual specifications, critical impurities, limitations on use, etc.

As already indicated, where concentrations of the extract may vary, give concentration of extract reported, or if N.F. or U.S.P., so state. Please state if the substance is listed in the "Food Chemicals Codex."

Also important are the effects of processing. If you have specific information showing that a substance is unstable in its application, attach details.

You will also find bound into the questionnaire a sample sheet. This has been completed only to show more clearly the mechanics and format we would like you to follow whereever possible. The actual "data" given on the sample sheet are not necessarily reliable, and in a number of cases purely fictitious, intended only for illustration.

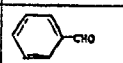
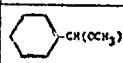
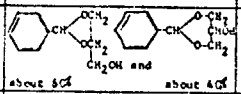
We have attempted to make this survey completely comprehensive. If you are aware of any flavoring ingredients now in use, not covered by this survey, please report their names, structural formulas if applicable, and any information you may have in use. We will then conduct a supplement to the survey to obtain comparable information on as broad a base as possible.

PLEASE WRITE LEGIBLY

3rd June, 1971

F.E.M.A. FLAVOR ADDITIVE SURVEY

COPY NO. 24 PAGE NO.

A F.E.M.A. NUMBER PRIMARY NAME SECONDARY NAMES	B CHEMICAL FORMULA (If a known single substance)	C NATURAL SOURCE	D FLAVORS IN WHICH USED (D) DOMINANT (M) MODIFYING (T) TRACE	E Degree of Import, FSS. - A IMP. - B USE. - C	F CONCENTRATION OF SUBSTANCE IN P.P.M. INTRODUCED INTO FINISHED FOOD 1 BEVERAGES (non alcoholic) Usual / Max. 2 BEVERAGES (alcoholic) Usual / Max. 3 ICE CREAM Ices & Sherbets Usual / Max. 4 CANDY Soft Usual / Max. 5 BAKED GOODS Usual / Max. 6 GELATIN Desserts & Puddings Usual / Max. 7 MEAT & Relished Products Usual / Max. 8 OTHER Specify Usual / Max.	G VOLUME	H ADDITIONAL INFORMATION (see instructions)
2,124 BAY, SWEET			Seasonings (M)	A	7 Usual: 350; Max: 600		
2,125 BAY, SWEET, OIL			Seasonings (M)	A	8 Usual: CONDIMENTS; Max: 15	X	
			Spices & Herbs (T)	B	2 Usual: 1.0; Max: 2.0 3 Usual: 0.6; Max: 1.0 4 Usual: —; Max: — 5 Usual: 1.0; Max: 10. 8 Usual: CONDIMENTS; Max: 40	X	
2,126 BEESWAX, WHITE Cire d'abeille absolute			Vanilla (M)	B	1 Usual: 1.0; Max: 1.0 2 Usual: —; Max: — 3 Usual: 2.0; Max: 5.0 4 Usual: 1.0; Max: 10. 5 Usual: 1.0; Max: 10.	X	
			Fruit - Berry (T)	C	1 Usual: 0.5; Max: 1.0 3 Usual: 1.0; Max: 2.0 6 Usual: 0.5; Max: 1.0		
2,127 BENZALDEHYDE Benzenecarbonal Benzenemethylal Benzoic aldehyde			Fruits - Pit (D)	A	1 Usual: 20.; Max: 40. 2 Usual: 30.; Max: 65. 3 Usual: 26.; Max: 50. 4 Usual: 32.; Max: 93. 5 Usual: 35.; Max: 100. 6 Usual: 40.; Max: 94. 7 Usual: —; Max: —	X	
			Nut (D)	A	1 Usual: 12.; Max: 25. 2 Usual: —; Max: — 3 Usual: 15.; Max: 40. 4 Usual: 15.; Max: 60. 5 Usual: 22.; Max: 80 6 Usual: —; Max: — 7 Usual: —; Max: —		
			Spices & Herbs (T)	A	1 Usual: 1.0; Max: 10. 2 Usual: —; Max: — 3 Usual: —; Max: — 4 Usual: 6.2; Max: 24. 5 Usual: 10.; Max: 21. 6 Usual: —; Max: — 7 Usual: —; Max: — 8 Usual: CONDIMENTS; Max: 40		
2,128 BENZALDEHYDE DIMETHYL ACETAL							
2,129 BENZALDEHYDE GLYCERYL ACETAL 2-Phenyl-m-dioxan-5-ol	 about 60% about 40%		Fruits - Pit (D)	B	1 Usual: 15.; Max: 35 2 Usual: 30.; Max: 65. 3 Usual: 20.; Max: 48. 4 Usual: 30.; Max: 70. 5 Usual: 35.; Max: 100. 6 Usual: 42.; Max: 90	X	

SAMPLE SHEET

(Actual size: 15" x 25")

EXHIBIT 19

EXHIBIT 20

August 1, 1972

INTRODUCTION TO NACGM FLAVOR SURVEY FINAL COMPILATION OF DATA */

The data included in this report constitute a compilation of the information received in response to the National Association of Chewing Gum Manufacturers (NACGM) Survey of the use of flavoring substances in chewing gum, conducted in cooperation with the Flavor and Extract Manufacturers' Association (FEMA) and the National Academy of Sciences-National Research Council (NAS-NRC). These data have been carefully reviewed by the NACGM Technical Committee, which has concluded that the uses reported are appropriate and consistent with good manufacturing practices in the use of flavoring substances in chewing gum.

The Technical Committee determined that an understanding of the use of flavoring substances in chewing gum and an accurate interpretation of the data being submitted might be aided by a background discussion. There follows a brief review of the background of the Survey, and those special

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*/ Much of the historical and background technical information contained in this Introduction originally appeared in the article "Flavoring Substances Used in Chewing Gum," authored by the NACGM Technical Committee, which appeared in Food Technology, 19 (6), 70 (1965). Present members of the NACGM Technical Committee are: T.T. Balling, J. Bohorad, R.C. Bucher, S.M. Cannavo, R.W. Ericson, E.L. Fenimore, E.E. Fisher, R.E. Klose, E.R. Koch, M. Sahaydak, M.L. Sapsowitz, J.J. Scanlan, R.B. Seligman, F. Witzel.

considerations with respect to the use of flavors in chewing gum vital to an understanding of the data presented.

I. THE 1963 NACGM FLAVOR SURVEY

In 1958-1960 FEMA conducted a flavor survey of flavor suppliers, and of a small sample of food manufacturers, in order to obtain data on the use of flavoring substances in food products. The data obtained from the FEMA Survey were considered by the FEMA Expert Panel in their deliberations on the status of flavoring substances under the Food Additives Amendment of 1958. Because of the special considerations involved in the use of flavoring substances in chewing gum, which were poorly represented in the original FEMA Survey, the NACGM conducted a separate Flavor Survey among its members in October, 1963, to obtain more complete use level data for chewing gum.[1/] The data obtained from the NACGM Survey were combined with the data obtained from the FEMA Survey and, after a thorough review by the FEMA Expert Panel, were incorporated in the compilation of use level data published by FEMA as an integral part of its GRAS List.[2/] These data reported that 293 flavoring substances included in the published

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1/ NACGM Bulletin 63-12 (September 19, 1963).

2/ Hall, R.L., and B.L. Oser, "Recent Progress in the Consideration of Flavoring Ingredients Under the Food Additives Amendment. III. GRAS Substances," Food Technology 19 (2), part 2, 253 (1965).

FEMA GRAS List were used in chewing gum at the time of those Surveys.

The NACGM Survey also showed that 7 flavoring substances not then included in the published FEMA GRAS List have been used in chewing gum. Those substances are listed, together with the "average maximum" level of use found in the NACGM Survey, in Appendix C. (Appendix A lists those substances reported in 1963 which did not appear on the 1971 Survey; Appendix B lists substances first reported in the 1971 Survey.)

A brief description of the 1963 NACGM Survey methodology may be helpful in understanding the results obtained then and in the 1971 NACGM Survey.[3/] Every participating NACGM member reported complete data on the levels at which single flavoring substances and proprietary flavor mixtures are used in each of its different chewing gum products, and requested the flavor suppliers who provide proprietary flavoring mixtures to supply to the compiler on a wholly confidential basis the quantitative composition of each such mixture. The FEMA Food Additives Committee recommended the cooperation of all members, and all but two provided the complete information requested. From this information the final compilation was completed.

3/ The 1971 Survey was similar in purpose and format to the 1963 Survey. Pertinent differences will be discussed below.

The NACGM Survey therefore showed as one use the total of all "multiple" uses of a single flavoring substance added to one chewing gum product from more than one source, whereas the FEMA Survey showed each such use as a separate use. For example, one product contained a total of 10,517 ppm of lemon oil from the multiple use of three different flavoring sources: two flavoring mixtures purchased from two different flavor suppliers, each of which contained lemon oil, and an amount of lemon oil added separately by the chewing gum manufacturer. This was reported as one use of 10,517 ppm in the NACGM data, rather than as three separate uses.

On the other hand, as will be discussed in greater detail below, neither the FEMA Survey nor the NACGM Survey attempted to show as one use the total of all "combination" uses in a single chewing gum product of two or more chemically related flavoring substances which contain one or more single chemical entities in common. For example, one product containing 14,880 ppm of methyl salicylate actually contained 7,610 ppm of synthetic methyl salicylate and 7,270 ppm of natural oil of sweet birch. This was reflected in both Surveys as two single uses of different flavoring substances rather than as one combination use of methyl salicylate. A survey attempting to discover the use levels of single chemical entities in chewing gum products, rather than just the use levels of individual flavoring substances, would in the

opinion of the Technical Committee be highly impractical, if not impossible.

Both chewing gum manufacturers and flavor suppliers were urged to send only exact information, and estimates of use levels were not accepted in the NACGM Survey. All data were recorded at the nearest 0.1 ppm, with the single exception that any level below 0.1 ppm was recorded simply as 0.1 ppm. The Technical Committee believes that the use level data obtained accurately reflected the use of flavors for those products covered by those chewing gum manufacturers who participated in the Survey.

The FEMA Survey had already compiled all available information on the poundage consumption, the history of use, and the toxicity and metabolism of each flavoring substance. Hence, the NACGM Survey did not request additional information of this type, except to ascertain that the use levels reported represent legitimate uses of the flavoring substance and that no known toxic reaction has resulted from such uses.[4/]

4/ The chewing gum industry has during the last twenty-five years maintained a close touch with FDA in developing methods for confirming the safety of chewing gum. As a result, substantial toxicity data were already available when the 1958 Amendment was enacted, and all of these data were submitted to FDA with Food Additive Petition No. 224, which resulted in the promulgation by FDA of a Food Additive Regulation for chewing gum base (21 C.F.R. § 121.1059). Included in this information are studies on chewing gum in which large amounts of flavoring substances were incorporated. None of these studies have indicated any toxic reaction to the chewing gum tested. Nor have 100 years of market experience indicated any toxic reaction to the use of chewing gum containing large amounts of flavoring substances.

As was expected, not all uses of flavoring substances in chewing gum were covered by the FEMA and NACGM Surveys. The Technical Committee estimated that perhaps half of the individual chewing gum products then sold in the United States were covered. Only a very small number of products once sold but now discontinued, or of products previously sold with a different kind or different level of flavoring, were covered. It was of course impossible to cover future chewing gum products except for those few that were just about to appear on the market at the time of the Surveys.

II. THE 1971 NACGM FLAVOR SURVEY

Early in 1969 the Technical Committee determined that a resurvey of the use of flavoring substances in chewing gum should be undertaken in order that the information obtained in the 1963 Survey could be made current.[5/] Development of this survey was overtaken by the announcement of the FDA review of the use of GRAS substances in foods, its contract with NAS-NRC to undertake a survey of such uses, and the resurvey of flavoring substances used in foods undertaken by FEMA.

The Technical Committee consulted with NAS-NRC and FEMA, and it was determined that because of the special

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5/ It is contemplated that such resurveys will be regularly undertaken, as the Technical Committee determines would prove useful.

considerations involved in the use of flavorings in chewing gum, NACGM should again survey the use of flavoring substances in chewing gum in cooperation with NAS-NRC and FEMA, and that the compiled results of the Survey should be submitted by the Technical Committee to the FEMA Expert Panel and to NAS-NRC. Complete results of the Survey are being submitted to the Expert Panel for its evaluation. The Survey results submitted to NAS-NRC differ from those submitted to the Expert Panel only in the application to the information submitted of the standards developed by NAS-NRC to protect confidentiality and trade secrets where a limited number of companies reported the use of a particular substance.

The 1971 data show the use of 400 flavoring substances that appeared on the FEMA GRAS Survey forms. In addition, the NACGM Survey showed the use of 19 flavoring substances in chewing gum that were not included in the FEMA GRAS Survey forms. These substances are listed, together with the "average maximum" level of use found in the NACGM Survey, in Appendix D.

As in 1963, every NACGM member who participated in the Survey provided complete data on the levels at which single flavoring substances and flavor mixtures are used in each of its different chewing gum products. After these data were posted to tally sheets, they were provided to a second compiler. Each chewing gum manufacturer then requested the

flavor suppliers who provide its flavoring mixtures also to send to the second compiler the quantitative composition of each such mixture. FEMA recommended the cooperation of all members.[6/] The second compiler then posted to the tally sheet the usage of individual flavors through the use of proprietary flavoring mixtures.

The 1971 NACGM Survey therefore again shows as one use the total of all "multiple" uses of a single flavoring substance added to one chewing gum product from more than one source. On the other hand, the Survey still does not attempt to show as one use the total of all "combination" uses in a single chewing gum product of two or more chemically related flavoring substances which contain one or more single chemical entities in common. The Technical Committee continues to believe that a survey producing this information would be highly impractical, if not impossible.

Both chewing gum and flavor manufacturers were urged to send exact information, and estimates of actual use of flavors were not accepted in the 1971 NACGM Survey. Manufacturers were requested, however, to provide estimates of the highest levels at which they believed each flavoring substance might be used if it were being employed as a

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6/ The Technical Committee is grateful for the cooperation received from FEMA member companies.

"dominant" flavoring ingredient.[7/] These data are separately reflected on the tally sheets on each substance recorded herein.

All data were recorded to the nearest 0.01 ppm except that values below 0.01 ppm were rounded to 0.01 ppm. The "absolute maximum" or highest use reported in the Survey is reported as well as the "average maximum" use obtained by averaging the maximum uses of individual companies. In addition, a value for the "weighted mean" of all uses reported is provided, determined in accordance with the procedures developed by NAS-NRC.

As in 1963, not all uses of flavoring substances in chewing gum were covered by the NACGM Survey, but the Technical Committee estimates that approximately 90 percent of the chewing gum products presently sold in the United States

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7/ Manufacturers were requested to indicate whether the actual use being reported on a substance was as a "trace," "modifying," or "dominant" flavor in the particular product. These reported uses are reflected on the data sheets being submitted. Flavoring substances used at one level to achieve a given flavoring purpose (e.g., in trace amounts) might be employed at a much higher level if a different but equally acceptable and desirable flavoring effect were desired (e.g., a dominant effect). Because uses may vary and a Survey undertaken at any point in time will reflect only the flavoring practices current at that time, information was sought on the levels at which each flavor might be expected to be used if it were employed as a dominant flavor. The Technical Committee believes that this information will help to provide more accurate parameters in the proper use of flavorings in chewing gum, discussed more fully within.

were covered. Again, only a very small number of products once sold but now discontinued, or of products previously sold with a different level of flavoring, were covered. It remained impossible to cover future chewing gum products except for those few that were just about to appear on the market at the time of the Surveys.

Because the use of flavoring substances may appropriately vary, and any survey will reflect only the use of flavoring substances at a particular point in time, and for the particular products reported upon, data have been included on those flavoring substances appearing on the published FEMA GRAS Lists which were reported in the 1963 NACGM Survey but did not appear in the 1971 NACGM Survey. The Technical Committee believes that the fact that these flavoring substances were not reported by the companies participating in the Survey conducted at this point in time should not in any way suggest that their use is not appropriate; that use was previously determined to be appropriate by the Technical Committee, and by the FEMA Expert Panel.

Ultimately, the compilation of the 1971 NACGM Survey data presents only a representative sample of the use of flavoring substances in chewing gum at one particular time, and is not an exhaustive presentation of all legitimate uses of flavoring substances in chewing gum. The Technical Committee believes, however, that it can be a very useful and

important tool in judging good manufacturing practice in the use of flavoring substances in chewing gum when considered in the context of well-established facts of chewing gum manufacture and usage.

III. THE USE OF FLAVORING SUBSTANCES IN CHEWING GUM

Four related facts require that chewing gum must, to achieve an acceptable flavor, contain a far higher level of flavor than any other food product. First, a substantial portion of the flavor in chewing gum is completely absorbed by the gum base, and is never made available for flavoring purposes. Second, chewing gum is kept in the mouth for periods of up to 60 minutes, and sufficient flavor must be available to maintain a palatable taste, with only surface contact, throughout this time. Third, gum chewing stimulates a far greater flow of saliva than does eating other food products,[8/] thus requiring a greater amount of flavor to compensate for this dilution. Fourth, a piece of chewing gum weighs far less than an individual serving of most other food

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8/ Shannon and Prigmore, Flow Rate Responses of the Human Parotid Gland, USAF School of Aviation Medicine Report 60-85 (September 1960).

products,[9] and the use of a given quantity of flavoring therefore results in a proportionately higher level of flavoring in chewing gum than in other food products.[10]

Chewing gum base absorbs a large amount of the flavoring ingredients, retaining it throughout the period of chewing. The amount retained varies with different flavoring ingredients but is on the order of 50 percent of the amount of the flavoring substance added to the gum.

In one test the following amount of methyl salicylate remained in a chewing gum containing 20 percent gum base after various periods of ad lib chewing:[11]

Chewing Time (Minutes)	Amount of Flavor Remaining in the Gum (Percent)
0.0	100
0.5	97
1.0	94
2.0	88
4.0	82
6.0	78
8.0	75
12.0	71
16.0	68
24.0	63
35.0	56

9/ A stick of ordinary slab chewing gum weighs about 3 grams, and a piece of bubble gum weighs about 6 grams. The flavor ordinarily represents 0.5%-1.5% of the product, but in some instances ranges up to 3.0% or even higher.

10/ It should be noted in passing that the very same factors which require a much higher concentration of flavoring in chewing gum than in other food products also substantially reduce the possibility of any toxic reaction to these higher levels.

11/ Unpublished data (August 31, 1951).

Of course, the amount of flavor extracted from chewing gum depends to some extent upon the type of flavoring substance used. Some flavoring substances are more easily extracted from chewing gum than others. Whether a flavoring substance is added to chewing gum as a separate flavoring substance or as a part of a prepared flavor mixture may also affect the amount of the substance extracted during chewing. The amount retained also depends upon the percentage of gum base in the particular chewing gum, varying in direct proportion to that percentage, i.e., a gum with 20 percent gum base retains twice as much of a given flavor ingredient as a gum with 10 percent gum base. Some additional amount of the flavoring ingredients, again varying from ingredient to ingredient, volatilizes out of the chewing gum before it is consumed, both during and after the manufacturing process. The remainder of the various flavoring ingredients, which is not retained in the gum base or volatilized away, is available for release and actual ingestion during the chewing of the gum.

Several further points must be made to bring the use of flavoring substances in chewing gum into meaningful comparison with the use of these substances in other fabricated foods, and with the similar use of these substances in the flavors of naturally occurring foods. Comparing concentrations (in ppm) of flavoring substances in chewing gum with the concentrations (in ppm) in other foods gives a very

misleading impression. More meaningful is a comparison by weight of the substance consumed on a per serving basis or a per day basis. For chewing gum a "serving" is a single stick or piece of gum chewed for about 30 minutes. If the stick is chewed for a lesser time it is equivalent to part of a serving because a smaller portion of the flavoring substances is released during a shorter period.

The key point in comparing chewing gum with other foods is that the very light weight of chewing gum and its other characteristics make its high concentrations of flavoring ingredients equivalent in weight of ingredients consumed to the lower concentrations in other, heavier foods.

For example, methyl salicylate may be used in chewing gum at a concentration of 15,000 ppm and it may be used in birch beer at only 300 ppm. However, a stick of chewing gum weighs only 3 grams and thus even at the higher concentration provides only 45 mg. of methyl salicylate which must be reduced by over one-half, to say 20 mg., to account for the amount which either volatilizes or remains in the gum base after chewing. Taking a 12 oz. (300 gram) bottle of birch beer as a serving, this provides 90 mg. of methyl salicylate, several times as much as a stick of chewing gum.

Similarly on a per day basis, one five-stick pack of chewing gum might provide as much as 100 mg. of methyl salicylate (assuming over 2-1/2 hours of steady chewing),

barely more than one bottle of birch beer. Thus, the high concentrations of flavoring ingredients found in chewing gum do not result in total amounts consumed by weight, which are out of line with those for other foods. This, after all, is the relevant consideration from a toxicological standpoint.

IV. CONCLUSIONS

The data obtained in the several FEMA and NACGM Surveys uniformly confirm that a much higher use level of any particular flavoring substance is necessary for chewing gum than for any other food product in order to achieve a given dominant flavor note or any other particular flavor effect. Some of these high use levels were made known through the original FEMA Survey, and some were not made known until the NACGM Surveys. Many legitimate high use levels in products now sold on the market by chewing gum manufacturers who were not covered by the FEMA and NACGM Surveys have not yet generally been made known. The sample of products surveyed is sufficient, however, to establish this very pronounced high use level pattern.

The Technical Committee has in addition recognized three significant limitations of the use level data presently available. First, as mentioned above, no attempt has been made to determine the "combination" uses of chemically

related flavoring substances, having in common identical chemical entities, in a single chewing gum product. The combination of menthol with peppermint oil, eugenol with clove oil, cinnamaldehyde with cassia bark oil, and anethole with anise oil, to name only a few examples, is common practice. Hence, even though the compiled data already show high use levels of each of the basic chemical entities, it may well be that through combinations with other chemically related substances the use of those basic chemical entities is actually higher. Second, the highest use reported for a particular flavoring substance in chewing gum or in other food products may well represent only a trace use or blending use. In those instances, a use level many times greater than the reported level may well be justified as a dominant use in appropriate situations. Third, for a great many natural and synthetic flavoring substances used in other food products, the FEMA and NACGM Survey data show no reported chewing gum use. This certainly does not mean either that they have never in the past been used in chewing gum, or that they are not now being used in chewing gum, or that they are in any way unsafe or unsuitable or inappropriate for future use in chewing gum.

The Technical Committee believes that these

limitations of the use level data presently available or even possible to obtain in the future, together with the technological factors already considered, make any rigid or narrow rules about the interpretation or application of such data inadvisable. The amount of flavoring appropriate for any chewing gum product is determined primarily by the effect intended to be achieved, and very few chewing gum products have the same intended flavor effect. Data obtained from one manufacturer therefore provide no valid basis for imposing rigid limitations upon a second manufacturer, or even upon future products of the first manufacturer.

For these reasons the Technical Committee recommends that neither the use levels shown in the compilation ultimately to be published by FEMA nor any other data be analyzed to establish rigid multiples to ascertain the boundaries of good manufacturing practice for the use of flavoring substances in chewing gum. It may well be that five times the "average maximum" use level shown by the FEMA and NACGM Survey data would include 95 percent of all <u>reported</u> uses of a particular flavoring substance in chewing gum, but it has been shown that all <u>reported</u> uses cannot validly be equated with all <u>legitimate</u> uses. Nor can the strict application of any multiple be of controlling importance in determining good

manufacturing practice for the use of particular flavoring substances in chewing gum in the many instances in which the available data show no chewing gum use whatever for those substances.

On the other hand, flavoring substances should not be used in chewing gum in an indiscriminate or haphazard manner, without regard to past experience and to established principles of flavor technology. The impossibility of formulating rigid rules to determine all legitimate uses of flavoring substances in chewing gum cannot be relied upon to excuse flagrant misuse and abuse of flavors. The Technical Committee therefore recommends that the following general principles be used as a guide to determining good manufacturing practice for the use of flavoring substances in chewing gum.

First, a determination of the amount of flavoring necessary to achieve an intended effect depends solely upon an organoleptic evaluation of the particular flavor or combination of flavors to be used in the specific chewing gum product medium. Accordingly, this determination must continue to rest upon the taste, experience, and judgment of expert chewing gum flavor chemists, as confirmed by consumer taste panel and other market research data.

Second, there are rough guidelines which can be

used to assist in judging the appropriateness of a high use level as the dominant flavor note in chewing gum. Comparisons can be made with high use levels in chewing gum, shown in the published FEMA GRAS List, of the substance being considered, of chemically related flavoring substances, and of flavoring substances with comparable flavoring potential. Comparisons can also be made with high use levels in other food products, on the very general basis that chewing gum ordinarily requires about twice the level of flavoring of hard candy, and perhaps twenty to twenty-five times the level of flavoring of other foods, such as beverages, in order to achieve approximately the same flavoring effect.[12/] The Committee would again caution, however, that these are very rough estimates that should not be considered as either rigid or uniformly applicable. The FEMA and NACGM Surveys have amply demonstrated that a factor of over 100 is at times necessary to relate legitimate high use levels of flavors in chewing gum to the use of flavors in other food products.

12/ The greatest difficulty in applying even these rough guidelines is in determining whether the use levels reported for other food products represent trace, blending, or dominant uses. It would be meaningless, for example, to apply a factor of 20 or 25 to a blending use level for beverages to judge the appropriateness of an intended dominant use level for chewing gum.

In summary, the Technical Committee is grateful for the basic work done by FEMA and FDA on the status of flavoring substances under the Food Additives Amendment of 1958. It believes that the use level data obtained in the FEMA and NACGM Surveys and published in the FEMA GRAS List complement that work by placing legitimate use levels for flavoring substances in chewing gum in proper perspective with legitimate use levels for flavoring substances in other food products. Finally, it hopes that the general principles discussed in this Introduction as a guide to good manufacturing practice in the use of flavoring substances in chewing gum will be useful to the chewing gum industry, the flavoring industry, the government, and the food industry in general.

EXHIBIT 21

August 1, 1972

REPORT ON THE USE OF FLAVORING SUBSTANCES IN THE MANUFACTURE OF HARD CANDY*

This Report consists of a compilation of the data received on the use of flavoring substances in the manufacture of hard candy in response to the survey undertaken by the National Confectioners Educational and Scientific Foundation (NCESF) in cooperation with the Flavor and Extract Manufacturers' Association (FEMA) and the National Academy of Sciences-National Research Council (NAS-NRC). These data have been reviewed for accuracy and to ensure that the reported uses comport with good manufacturing practice in the manufacture of hard candy by a Technical Committee of the NCESF, composed of individuals expert in the flavor technology of hard candy. In addition, these data are being submitted to the FEMA Expert Panel for its review.

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* The term "hard candy" as used in this context comprehends not only pressed mints and boiled candy, such as drops, but other products, like hard gums and some soft jellies, in which, for the reasons set forth in this Report, the use of relatively high levels of flavoring substances is necessary.

I. Mechanism of the 1971 NCESF Flavor Survey

When it was learned that FEMA was undertaking a resurvey of the use of flavoring substances in foods, and that the data obtained through this survey would be included in the NAS-NRC report to the Food and Drug Administration on the use of GRAS substances in foods, representatives of NCESF met with representatives of FEMA and of NAS-NRC, and it was concluded that a separate survey of the use of flavoring substances in hard candy products should be undertaken by NCESF.

It was determined that the relatively unique flavoring requirements for these products necessitated that they be considered separately from other food products, and that the most accurate reflection of the levels of use and of the variety of flavors employed would be obtained by a survey specifically directed to the industry.

It was recognized that the 1963 FEMA survey did not present a comprehensive picture of the appropriate use of flavoring substances in hard candy. This was a result in part of the fact that few hard candy manufacturers were covered by the survey and of the techniques employed to eliminate what in some cases appeared to be aberrant reports. As a result of these factors, neither the

variety of flavors employed in hard candy nor the relatively high levels of use of individual flavors which are required as a result of unique characteristics of the product, discussed more fully within, were reflected in the 1963 FEMA data.

The 1971 NCESF survey was designed to obtain as complete reports as possible from all hard candy manufacturers both on the varieties of flavors used in hard candy products and on the levels at which they are used. We believe that the results being reported fairly represent the use of flavoring substances in hard candy. They are not, however, by any means exhaustive of the legitimate uses of flavoring substances in hard candy, and they should not be construed as representing any limitations on use. While reports were received from what we believe to be the vast majority of manufacturers of hard candy products, not all companies receiving the survey responded. Moreover, any survey of this kind will include only those flavor uses which are current at the moment in time at which the survey is taken.

In the NCESF survey, each manufacturer was requested to provide precise data on his direct addition of flavoring substances to the products he manufactured.

In addition, each manufacturer was requested to provide complete information with respect to the addition of proprietary flavoring compounds in hard candy products. These reports were forwarded for initial compilation. The manufacturers of the proprietary flavoring compounds reported to be used were requested by NCESF, with the active support of FEMA, to provide precise qualitative and quantitative information with respect to those products. This information was provided on a confidential basis to a second compiler, who then combined it with the flavor uses reported directly by the hard candy manufacturer.

As a result, the data reported from the NCESF survey indicate as a single use all uses of the same flavor substance in a single product. In other words, the direct addition to a product of 500 ppm methyl salicylate by a hard candy manufacturer and his addition of a proprietary flavoring compound containing 4,500 ppm methyl salicylate to the same product would appear in the NCESF data as a single use of 5,000 ppm of methyl salicylate. On the other hand, it has not been possible to combine reported uses of flavoring substances which may be chemically related, and the use of 2,500 ppm of methyl salicylate and 2,500 ppm of natural oil of sweet birch would appear as two separate uses in these data.

The data included in this Report have been recorded to the nearest 0.01 ppm, with all values less than 0.01 ppm reported simply as 0.01 ppm. In addition to providing the "average maximum" of the uses reported, there is included the "absolute maximum" or highest use reported and the "weighted mean" of all uses reported, as requested by the NAS-NRC.

Reports were received on the use of 478 flavoring substances through the NCESF survey, of which 432 appeared on the FEMA survey form.

II. Special Considerations Requiring the Use of Relatively High Levels of Flavoring Substances in Hard Candy Products

There are several considerations, virtually unique to hard candy products, which require the use of flavoring substances at higher levels than they are used in other foods. Many of these characteristics are shared by chewing gum products, the flavoring technology of which is discussed at length in the article "Flavoring Substances Used in Chewing Gum," which appeared in Food Technology, 19 (6), 70 (1965). In most respects, the discussions in that article are equally applicable to hard candy products.

First, hard candy products are not immediately ingested, but are kept in the mouth and sucked for a

period of time. For the product to be organoleptically acceptable and satisfying, sufficient flavor must be available to maintain palatability with only surface contact throughout this period of time. Similarly, soft jelly products, which are chewed and ingested in chunks, must provide sufficient flavor sensation from the relatively small surface areas exposed and the small amount of the product which is dissolved in the mouth.

Second, this method of ingestion stimulates a far greater flow of saliva than does the eating of other food products. As a result, an adequate amount of flavoring is required to compensate for this dilution.

Third, a piece of hard candy weighs far less than most individual food servings, and is in the range of about two grams. Consequently, a given quantity of flavoring results in a proportionately higher level of flavoring in hard candy than in other food products.

Fourth, a significant amount of the flavoring employed is volatilized during the manufacturing process and the shelf life of the product. As a result, in order to meet the initial two requirements stated it is necessary to compensate for this loss.

The most important factor to be kept firmly in mind in a review of the data in this report is that

because of the relatively low weight of an individual serving of hard candy, the fact that there is a higher level of flavoring used in terms of parts per million in the final product than is used in other food products does not mean that the comsumer is exposed to a greater quantity of flavoring from that product. While it is not possible to establish firm rules for comparing the levels of flavoring needed in different food products to achieve equivalent flavor effects, we estimate as a rough guideline that hard candy requires 10-to-15 times the level of flavoring of soft candy, beverages, and other food products in order to achieve the same effect. However, the use of 4,500 ppm of methyl salicylate in a 25 gram roll of hard candy and 330 ppm in a 12 ounce bottle of beverage represents precisely equivalent uses of methyl salicylate by weight in the final product.

When the data in this report are viewed in this context, we believe it is evident that they represent reasonable and appropriate uses of flavoring substances to achieve a necessary organoleptically acceptable and satisfying sensation from the consumption of hard candy products.

* * *

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Paul M. Schlem, Chairman Gold Seal Vineyards, Inc. Empire State Building New York, NY 10001	Mr. F. W. Griffith, President Griffith Laboratories 855 Rahway Avenue Union, NJ 07083	Froda S. Hanson, Vice President Lloyd J. Harriss Pie Company 1751 W. Hubbard Street Chicago, IL 60622
Mr. W. E. McCormick B. F. Goodrich Company 500 S. Main Street Akron, OH 44318	W. H. Gernard, Vice President Grocery Store Products Company Union & Adams Streets West Chester, PA 19380	Dr. Arthur S. Wendt HCA Food Corporation Research Center 145 Patterson Avenue Little Falls, NJ 07434
The Gorton Corporation Attn: Mr. William F. O'Connor 327 Main Street Gloucester, MA 01930	David Grote Thornton, President Grote & Weigel, Inc. 76 Granby Street Bloomfield, CT 06002	Robert Moore, President Hawthorn Mellody, Inc. 4201 W. Chicago Avenue Chicago, IL 60651
Mr. Charles W. Simons Dewey and Almy Chemical Division W. R. Grace & Co. 62 Whittemore Avenue Cambridge, MA 02140	Mr. Seymour F. Prager Technical Director S. Gumpert Co., Inc. 812 Jersey Avenue Jersey City, NJ 07303	Robert D. Heath, President L.S. Heath & Sons, Inc. 206 South Jackson Street Robinson, IL 62454

EXHIBIT 23

Mr. Warren Burd Hebrew National Kosher Foods, Inc. 58-80 Maurice Avenue Maspeth, NY 11378	Edward T. Hillson, President The Hillson Nut Company 3225 West 71st Street P. O. Box 02038 Cleveland, OH 44102	James W. Hogan, President House of Bauer Chocolate, Inc. 2440 "O" Street Lincoln, NE 68510 9
R. Burt Gookin, Pres. & CEO H. J. Heinz Company 1062 Progress Street Pittsburgh, PA 15230	Richard L. Hoffman, President Hoffman Candy Company 6600 Avalon Boulevard Los Angeles, CA 90003	Howard B. Johnson, Chairman, President & CEO Howard Johnson Company One Howard Johnson Plaza Boston, MA 02125
P. H. Helms, Jr., Chmn. of Board Helms Bakeries 8800 Venice Boulevard Los Angeles, CA 90034	V. D. Mattia, President Hoffmann-LaRoche, Inc. 340 Kingsland Street Nutley, NJ 07110	L. D. Waldo, President Hubbard Milling Company 424 North Front Street Mankato, MN 56001
Robert G. White, President Hendrie's, Incorporated 131 Eliot Street Milton, MA 02187	J.S. Vander Heide, President Holland American Wafer Company 1823 Division Avenue South Grand Rapids, MI 49507	Michael W. Huber, President J. M. Huber Corporation Thornall Street Edison, NJ 08817
Dr. R. H. Forsythe Henningsen Foods, Inc. 2501 College Street Springfield, MO 65802	John W. Hoermann, President M. J. Holloway & Co. 308 West Ontario Street Chicago, IL 60610	R. S. Fisher, Chairman of Board The Hubinger Company 601 Main Street Keokuk, IA 52632
Werner C. Brown, President Hercules Inc. 910 Market Street Wilmington, DE 19899	F.A. Martoccio, President Hollywood Brands, Inc. Chestnut Calumet Street Centralia, IL 62801	Sam Cooper, President Humko Products P. O. Box 398 White Station Tower Bldg. Memphis, TN 38101
Harold S. Mohler, President Hershey Foods Corporation Hershey, PA 17033	R. C. Brunner, President Holsum Foods P. O. Box 218 Waukesha, WI 53186	President HLH Products A Division of Hunt Oil Co. 1401 Elm Street Dallas, TX 75202
Stuart D. Watson, Pres. & CEO Heublein, Inc. 330 New Park Avenue Hartford, CT 06101	Mr. Erling Rice Home Brands, Inc. 4600 Lyndale Avenue, N.W. Minneapolis, MN 55412	Raymond J. Moshy, Vice Pres. Research & Development Hunt-Wesson Foods 1645 W. Valencia Drive Fullerton, CA 92634
F.R. Kollmansperger, Jr., Pres. High's Ice Cream Corp. 1063 W. 38th Street Norfolk, VA 23508	Ezra Merrill, President & CEO H. P. Hood and Sons, Inc. 500 Rutherford Avenue Boston, MA 02129	J. W. Feighner, President Tom Huston Peanut Co. 900 - 8th Street Columbus, GA 31901
Mr. R. E. Murray Hiland Potato Chip 2923 Rockingham Road Davenport, IA 52802	Mr. Jerome Wilkenfeld Hooker Chemical Corporation 1515 Summer Street Stamford, CT 06905	Mr. F. J. Dunn D. W. Hutchinson & Co., Inc. 700 S. Columbus Avenue Mt. Vernon, NY 10550
Reuben W. Hills, III, President Hills Brothers Coffee, Inc. 2 Harrison Street San Francisco, CA 94119	M. B. Thompson, Chairman & CEO Geo. A. Hormel & Company Box 800 Austin, MN 55912	F. F. Boustany, President Huval Baking Co., Inc. 320-24 St. John Street Lafayette, LA 70501

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Jack Freidland, President Hygrade Bakery Company Industrial Park Road Pennsville, NJ 08070	Mr. H. Slife Irath Packing Company Sycamore and Elm Streets Waterloo, IA 50703	William D. Harmsen, President The Jolly Rancher Candies 5060 Ward Road Wheat Ridge, CO 80033 10
Richard T. Berg, President & CEO Hygrade Food Products Corp. 11801 Mack Avenue Detroit, MI 48214	President Isaly Company 3380 Boulevard of Allies Pittsburgh, PA 15213	Mr. Edward C. Jones Jones Dairy Farm Fort Atkinson, WI 53538
W. Fred Atkinson, President Ideal Pure Milk Company 201 S. E. 8th Street Evansville, IN 47713	R. Newton Laughlin, Chairman of the Board I.T.T. Continental Baking Co. P. O. Box 731 Rye, NY 10580	Milton J. Schloss, President The S. Kahn's Sons, Co. 3241 Spring Grove Avenue Cincinnati, OH 45225
Lloyd Halverson, Exec. Vice President & General Manager John Inglis Frozen Foods Co. 330 South Daly Avenue Modesto, CA 95353	John W. Barton, President Jack's Cookie Corp. 1609 Elizabeth Avenue P. O.Box 4006 Charlotte, NC 28201	Mr. E. G. Beebe Kaiser Chemicals 300 Lakeside Drive Oakland, CA 94604
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Walter W. Thulin, V.P. & Gen.Mgr. Flavor Division (U.S.) International Flavors&Frag., Inc. 521 West 57th Street New York, NY 10019	Mr. Robert R. Reese Jefferson Chemical Co., Inc. 7114 N. Lamar Austin, TX 78751	George M. Keller, Jr., President Keebler Company 677 Larch Avenue Elmhurst, IL 60126
Richard A. Lenon, Pres. & CEO International Minerals & Chem. Old Orchard Road Skokie, IL 60076	R. Carl Chandler, Chairman J. D. Jewell Inc. 311 Green Street, N.E. Gainesville, GA 30501	Dr. A. B. Steiner Kelco Company 1010 Second Avenue San Diego, CA 92101
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E. B. Hunter, President Interstate Bakeries Corp. 12 E. Armour Boulevard Kansas City, MO 64111	Clifford Johnson, Pres./Treas. H. A. Johnson Company 155 North Beacon Street Boston, MA 02135	Mr. Spencer W. Beckstead Kerr-McGee Chemical Corp. Kerr-McGee Building Oklahoma City, OK 73102
C. H. Holman, Chairman of Board Iowa Beef Packers P. O. Box 494 Dakota City, NE 68731	S. J. Fretz, President Robert A. Johnston Co. 4023 W. National Avenue Milwaukee, WI 53201	Bill Schult, President Keystone Cooperative Grape Assn. 63 Wall Street North East, PA 16428

EXHIBIT 23

P. Hazelrig, President Kilpatrick's Bakeries 2030 Folsom Street San Francisco, CA 94110	Dr. Samuel Zuckerman H. Kohnstamm & Co., Inc. 161 Avenue of the Americas New York, NY 10013	Ajinomoto Co. of New York, Inc. 745 Fifth Avenue New York, NY 10022 Attention: Y. Ikeda, President
A. L. Scott, President & CEO Kimbell, Inc. 1929 S. Main Street Fort Worth, TX 76101	Stephen Z. Kowalski, President Kowalski Sausage Company, Inc. 2270 Holbrook Avenue Hamtramck, MI 48212	Leonard H. Lavin, President Alberto-Culver Company 2525 Armitage Avenue Melrose Park, IL 60164
Porter King, President King Candy Company P. O. Box 2080 13 East 9th Street Fort Worth, TX 76101	W. O. Beers, President Kraftco Corporation 260 Madison Avenue New York, NY 10016	William V. Ritchie, President All American Nut Company 16901 Valley View Street Cerritos, CA 90701
James A. Schlindwein, President Kitchens of Sara Lee 500 Waukegan Road Deerfield, IL 60015	John F. Krey, II, President Krey Packing Company 3607 N. Florissant Avenue St. Louis, MO 63107	Frederick L. Bissinger, Pres. Allied Chemical Corp. 1411 Broadway New York, NY 10018
Edward J. Kleuner, President Kleuner Packing Company 2842 Massachusetts Avenue Cincinnati, OH 45225	V. C. Rudolph, Chairman of Board Krispy-Kreme Doughnut Corp. 1814-20 Ivey Avenue Winston-Salem, NC 27105	Roy E. Folck, Jr., President Allied Mills Inc. 110 North Wacker Drive Chicago, IL 60606
President Knoll Fine Chemicals, Inc. 120 East 56th Street New York, NY 10022	James P. Herring, President The Kroger Company 1014 Vine Street Cincinnati, OH 45201	William A. Dieppe, President Almaden Vineyards, Inc. 1 Maritime Plaza San Francisco, CA 94111
Mr. Ken Oliphant Knott's Berry Farm 8039 Beach Blvd. Buena Park, CA 90620	Maynard K. Tescher, President Kuner-Empson Company Box 329 Brighton, CO 80601	Walter R. Daggatt, President Alpac Corporation Skinner Building Seattle, WA 98101
Dean L. Carey, President Knouse Foods, Inc. Peach Glen, PA 17306	Edward J. Ledder, President Abbott Laboratories Abbott Park North Chicago, IL 60064	Arthur E. Benning, President The Amalgamated Sugar Co. 801 First Security Bank Bldg. Ogden, UT 84401
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A. Koepplinger, President Koepplinger's Bakery Inc. 15200 W. 8-Mile Road Oak Park, MI 48237	Fred L. Merrill, President ADM Milling Company P.O. Box 5277 - Plaza Station 201 Gulf Oil Building Kansas City, MO 64112	Harold J. Tellier, President Ambrosia Chocolate Company Div. of W.R. Grace & Co. 1133 North Fifth Street Milwaukee, WI 53203
R. E. Koester, President E. H. Koester Bakery Co. 630-52 W. Lexington Street Baltimore, MD 21201	Hilard L. Kravitz, Vice President - Research Adolph's Food Prod. Mfg. Co. P. O. Box 828 Burbank, CA 91503	F. W. Amend, Chairman of Board Fred W. Amend Company 610 Church Street Evanston, IL 60201

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M.J.C. West, President American Beef Packers P. O. Box 518 Oakland, IA 51560	Ira V. Lay, Jr., President Lay Packing Company 400 East Jackson Avenue P. O. Box 2447 Knoxville, TN 37901	Charles G. Hauser, Chairman Litchfield Creamery Co. 120 W. St. John Street Litchfield, IL 62056
F. B. Evers, Jr., President American Bread Company 702 Murfreesboro Road Nashville, TN 37210	James F. Lunn, President Lea & Perrins, Inc. Pollitt Drive Fair Lawn Industrial Park Fair Lawn, NJ 07410	Royal L. Ash, President Litton Industries, Inc. 360 N. Crescent Drive Beverly Hills, CA 90213
Mr. Edward K. Walsh Director, Industry Affairs American Can Company 1660 L Street, N.W., Suite 214 Washington, D.C. 20036	Jack J. Kastin, President Leader Candies, Inc. 132 Harrison Place Brooklyn, NY 11237	C. Hilgert, President Loft Candy Corporation 38-38 9th Street Long Island City, NY 11101
G. G. Rhodes, President Lance P.O. Box 2389 Pineville Road Charlotte, NC 28201	James T. Hintlian, President The Leavitt Corporation 100 Santilli Highway P. O. Box 31 Everett, MA 02149	Curtis H. Judge, President Lorillard Div. of Loew's Theatres, Inc. 200 East 42nd Street New York, NY 10017
C. Gilbert Lamb, President Lamb-Weston, Inc. P. O. Box 23507 Portland, OR 97223	Mr. Art Hochhouser Supervisor R & D Lehigh Valley Dairy 1000 N. 7th Street Allentown, PA 18102	Sam N. Young, President Lovelace Candy Mfg. Co. Box 310 Greenbrier, TN 37073
Walter Siemers, President Lake to Lake Dairy Coop. 2000 S. 10th Street Manitowoc, WI 54220	Marshall S. Leaf, Senior Vice President & Treasurer Leaf Brands Div., W.R. Grace & Co. 1155 N. Cicero Avenue Chicago, IL 60651	O. Edwards, President Loves Ltd. 836 Kapahulu Avenue Honolulu, HI 96816
William D. Lamborn, President Lamborn and Co., Inc. 99 Wall Street New York, NY 10005	Mr. W. N. Burding Chairman Executive Committee Lever Brothers Company 390 Park Avenue New York, NY 10022	President Luck's, Incorporated Seagrove, NC 27341
Richard Rappaport, President Lanco Products Corporation 18th and Kansas Avenue Kansas City, KS 66105	David E. Guerrant, Pres./CEO Libby, McNeill & Libby 200 South Michigan Avenue Chicago, IL 60604	William H. Dyer, Jr., President Lucky Stores, Inc. 1701 Marina Boulevard San Leandro, CA 94577
D. H. Henry, General Manager Land O'Lakes, Inc. 614 McKinley Place Minneapolis, MN 55413	John Chakirian, Vice President and General Manager Liberty Orchards Company, Inc. 117-123 Mission Street Cashmere, WA 98815	H. Richard Dietrich, Jr., Pres. Luden's Inc. 200 N. Eighth Street Reading, PA 19603
Mark H. Mitchell, Chairman The Larsen Company P. O. Box 1127 Green Bay, WI 53405	Samuel White, Corp. Vice. Pres. Liggett & Myers, Inc. 630 Fifth Avenue New York, NY 10020	J. B. Hawkins, Vice President Lykes Bros., Inc. Meat Packing Division P. O. Box 518 Plant City, FL 33566

Mr. Herman A. Birnbaum 3 M Company 3 M Center St. Paul, MN 55101	President Marine Colloids, Inc. 2 Edison Place P. O. Box 70 Springfield, NJ 07081	Mr. Eugene H. Stevenson Research Center Mead Johnson & Company Evansville, IN 47721
Harold E. Thayer, President Mallinckrodt Chemical Works 3600 N. Second Street St. Louis, MO 63160	Loren A. DuBois, Merchandise Manager-Foods and Candy Marshall Field & Company 111 North State Street Chicago, IL 60690	Ray L. McGarvey, President Meadow Brook Dairy 2365 Buffalo Road Erie, PA 16510
Kenneth G. Reesman, VP/Gen. Mgr. Maola Milk & Ice Cream Co. P. O. Drawer S New Bern, NC 28560	J. R. King, President Martha White Foods, Inc. 110-21st Avenue, South Nashville, TN 37203	George Meer, President Meer Corporation 318 W. 46th Street New York, NY 10036
Russell D. Albers, President MacFarle's Candies 415 - 24th Street Oakland, CA 94612	P. Goff Beach, President Oscar Mayer & Company 910 Mayer Avenue Madison, WI 53701	Henry W. Gadsden, President Merck and Co., Inc. 126 E. Lincoln Avenue Rahway, NJ 07065
Ronald Malecki, President Joseph Malecki, Inc. 2320 Clinton Street Buffalo, NY 14225	Mr. Walter R. Wendt Mayflower Farms 2720 S.E. 6th Avenue Portland, OR 97242	The President Mirlin Corporation 19 Pelham Island Rd. Wayland, MA 02778
R. C. Wooten Lykes Pasco Packing Company Highway 301 Dade City, FL 33525	Dr. Floyd J. Green MBC Manufacturing Chemists 2909 Highland Avenue Norwood, OH 45212	B. O. Mead, President Merico, Inc. 8504-08 Chancellor Carrollton, TX 75006
Glenn S. Brooks, President Malt-O-Meal Company 1115 Northstar Center Minneapolis, MN 55402	Kenneth H. McClure, President K. H. McClure & Co., Inc. 1100 High Ridge Road Stamford, CT 06904	Henry Metz, Jr., Chmn. of Board Metz Baking Company 1500 Highway 75 N. Sioux City, IA 51105
B. Manischewitz, President B. Manischewitz Company 9 Clinton Street Newark, NJ 07102	Harry K. Wells, President McCormick & Company, Inc. 11350 McCormick Road Cockeysville, MD 21030	J. D. Mordoff, President Meyenberg Milk Products, Inc. 339 Industrial Avenue Ripon, CA 95366
G. Manning, President Manor Baking Company 4050 Penn Street Kansas City, MO 64111	Garfield Wagner, Gen. Manager McDonald CooperativeDairy Co. P. O. Box 469 Flint, MI 48501	C. E. Heidrich, President Miami Margarine Company 5226 Vine Street Cincinnati, OH 45217
Colin Baxter, President Mars, Incorporated Westgate Park 1651 Old Meadow Road McLean, VA 22101	W. S. McIlhenny, President McIlhenny Company Avery Island, LA 70513	Mr. Joe Skwara Assistant Director of Research Michigan Fruit Canners 9th Street Benton Harbor, MI 49022
Sylvio D. Gaon, Pres./Gen. Mgr. Market Confections, Inc. 4375 Bandini Boulevard Los Angeles, CA 90023	O. D. McKee, President McKee Baking Company Collegedale, TN 37315	James F. Pomroy, President Mickelberry's Food Products Co. 7401 S. Kostner Chicago, IL 60629

EXHIBIT 23

J. B. Maher, Jr., Chmn./Pres. Mid-Continent Industries, Inc. 1679 N.E. 51st Avenue Des Moines, IA 50316	James W. Campbell, President Morton Foods Div. W.R. Grace & Co. 6333 Denton Drive Dallas, TX 75235	E. R. Hansberry, President National Bakers Service, Inc. 1747 Van Buren Street Hollywood, FL 33020 14
R. L. Hutchinson, President Michigan Fruit Canners, Inc. Sub. Consolidated Foods Corp. Fennville, MI 49408	Mr. LeRoy Russ Quality Assurance Manager Morton Quality Products Div. 110 North Wacker Drive Chicago, IL 60606	President National Casein Company 601 W. 80th Street Chicago, IL 60620
Mr. Burdet Heinemann Mid-America Dairymen, Inc. P. O. Box 1837, S.S. Station 800 W. Tampa Street Springfield, MO 65802	Ole K. Waage, Exec. Vice Pres. Mother's Cake & Cookie Co. 810 81st Avenue Oakland, CA 94621	Frank Armstrong, Jr., President National Fruit Product Co., Inc. P. O. Box 609 Winchester, VA 22601
Walter A. Compton, President Miles Laboratories, Inc. 1127 Myrtle Street Elkhart, IN 46512	John N. Walker, Pres./Treas. Mount Olive Pickle Co. 812 N. Chester Street Mount Olive, NC 28365	D. D. Pascal, Chmn. of Board National Starch & Chem. Corp. 750 Third Avenue New York, NY 10017
Daniel LaFleur, Vice President Missouri Beef Packers Amarillo Bldg. Amarillo, TX 79105	Mr. Arthur W. Sheldon M&T Chemicals, Inc. P. O. Box 1104 Rahway, NJ 07065	Nathan Bilger, Chairman/CEO National Sugar Refining Co. 2 Pennsylvania Plaza New York, NY 10001
George M. Conklin, President M&M/MARS High Street Hackettstown, NJ 07840	C. Frederick Mueller, Executive Vice President C. F. Mueller Company 180 Baldwin Avenue Jersey City, NJ 07306	J. Allan Mactier, President Nebraska Consolidated Mills Co. Grocery Products Division 500 Kiewit Plaza Omaha, NE 68131
Mr. Lester Levin Mobil Oil Company Box 927 Philadelphia, PA 19105	Mr. S. T. Musser Musser's Potato Chips Marietta Pike Mountville, PA 17554	Jerry P. Koyney, President Needham Packing Co. 191 Cunningham Drive Sioux City, IA 51107
Barry G. Berger, President Mogen David Kosher Meat Prod. 968 Longfellow Avenue New York, NY 10459	P. D. Duchaine, President My Bread Baking Co. 229 Coffin Avenue New Bedford, MA 02746	Mr. W. H. Williams Neville Chemical Company Neville Island Pittsburgh, PA 15225
Edward J. Bock, President Monsanto Company 800 N. Lindbergh Boulevard St. Louis, MO 63166	Dr. Irving Rusoff Director - Basic Studies Nabisco 2111 Route 208 Fair Lawn, NJ 07410	Gerard J. Gogniat, President The Nestle Company, Inc. 100 Bloomingdale Road White Plains, NY 10605
Ivan H. Morgan, President Morgan Packing Company Austin, IN 47102	George H. Hutchings, President Nalley's Fine Foods Div. W.R. Grace & Co. 3303 South 35th Street Tacoma, WA 98411	E. R. Coddington, President New England Confectionery 254 Massachusetts Avenue Cambridge, MA 02139
Toby Schreiber, President Morley Equities Corp. 100 East Grand Avenue South San Francisco, CA 94080	Lee S. Bickmore, Chmn. of Board National Biscuit Company 425 Park Avenue New York, NY 10022	Mr. Robert E. Silver New England Fish Company Pier 89 Seattle, WA 98119

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E. Nickles, President Alfred Nickes Bakery, Inc. 26 N. Main Street Navarre, OH 44662	David E. Ohse, President Ohse Meat Products, Inc. P. O. Box 1336 3215 East 6th Street Topeka, KS 66601	Robert J. Pasarow, Chmn./Pres. Pan-Pacific Fisheries, Inc. 350 Sardine Street Terminal Island, CA 90731
John R. Nissen, President John J. Nissen Baking Co. 59 Washington Avenue Portland, ME 04101	Paul J. Kuharich, President Old Dominion Sugar Corp. Park Building-Suite 404 6400 Goldsboro Road Washington, D.C. 20034	George B. Page, President The Page Milk Company Merrill, WI 54452
G. F. Nolde, President Nolde Brothers, Inc. 2520 E. Broad Street Richmond, VA 23223	Robert K. Pedersen, President Ore-Ida Foods, Inc. Box 10 Boise, ID 83707	R. H. Jennings, III, President Palmetto Baking Co., Inc. 1037 Broughton Street Orangeburg, SC 29115
President NOPCO Chemical Division Diamond Shamrock Chemical Co. 60 Park Place Newark, NJ 07101	Mr. J. N. Major, Jr. Old Virginia, Inc. Front Royal, VA 22630	James C. McDonough, President Pangburn Company, Inc. P. O. Box 65 Fort Worth, TX 76101
President Nutritional Biochemicals Corp. 26201 Miles Road Cleveland, OH 44128	Gordon Grand, President Olin Chemicals Olin Mathieson Chemical Corp. 120 Long Ridge Road Stamford, CT 06904	Henry G. Parks, Jr., President Parks Sausage Company P. O. Box 854 Baltimore, MD 21203
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Leo D. Levinson, Chmn. of Board Ocean Products, Inc. P. O. Box 1126 Tampa, FL 33601	Carl K. Glickman, Gen. Manager Ovaltine Food Products Box 111 Villa Park, IL 60181	Mario Ielmini, President Patterson Frozen Foods, Inc. P. O. Box 428 Patterson, CA 95363
Edwin F. Lewis, President Ocean Spray Cranberries, Inc. Main Street Hanson, MA 02341	Mr. J. W. Hackett Owens-Illinois P. O. Box 1035 Toledo, OH 43601	Leonard M. Lavezzorio, President Peanut Specialty Company 400 West Superior Street Chicago, IL 60610
J. B. Weix, President Oconomowoc Canning Company P. O. Box 248 Oconomowoc, WI 53066	Robert H. Beeby, President/CEO Pacific Vegetable Oil Corp. World Trade Center San Francisco, CA 94111	G. E. Pearson, President Pearson Candy Company 2140 W. Seventh Street St. Paul, MN 55116
William C. Baker, President Ocoma Foods Company 810 Farnam Street Omaha, NE 68102	John W. Ritchie, Gen. Manager Mrs. Paul's Kitchens 5830 Henry Avenue Philadelphia, PA 19128	M.W.K. Heffelfinger, Exec. V.P. Peavey Company Flour Mills 860 Grain Exchange Building Minneapolis, MN 55415
M. Lee Rice, President Ogden Corporation 161 E. 42nd Street New York, NY 10017	Melvin S. Gordon, President Paradise Fruit Co. 1200 W. Haines Street Plant City, FL 33566	Robert F. Picken, President Peerless Confection Company 1250 West Schubert Avenue Chicago, IL 60614

EXHIBIT 23

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Mr. George McCutcheon S. B. Penick & Company 540 New York Avenue Lyndhurst, NJ 07071	Lloyd W. Elston, President Peter Paul, Inc. New Haven Road Naugatuck, CT 06770	Mr. G. E. Zartmann Technical Service Manager Polo Food Products Co. 601 E. Algonoquin Road Schaumburg, IL 60172
John F. Garber, Jr ., President Penn Dairies, Inc. 1801 Hempstead Road Lancaster, PA 17601	Richard D. Kerckhoff, Chmn./Treas Pevely Dairy Company 1001 S. Grand Blvd. St. Louis, MO 63104	Mr. Thomas H. Jones Poultrymen's Coo. Assn. 1863 Service Court Riverside, CA 92502
M. B. Pennington, Chmn. of Board Pennington Brothers Inc. 4557 Montgomery Road Cincinnati, OH 45212	Mr. John J. Powers, Jr. Pfizer Incorporated 235 E. 42nd Street New York, NY 10017	Robert E. Fraser, President Powell's Inc. Excelsior Blvd. & Powell Rd. Hopkins, MN 55343
Mr. C. J. Daly Executive Assistant Pennwalt Three Parkway Philadelphia, Pennsylvania	George Weissman, President Philip Morris Inc. 100 Park Avenue New York, NY 10017	S. D. Weinstein, Vice President Presco Food Church Street Flemington, NJ 08822
Lincoln A. Warrell, President Pennsylvania Dutch Co., Inc. Mount Holly Springs Pennsylvania, 17065	Mr. A. M. Schnitzer Phillips Petroleum Company 356 Research Building 1 Bartlesville, OK 74004	Donald G. Reese, Exec. V. P. Presto Food Products, Inc. 1101 East 16th Street Kansas City, MO 64108
J. Mackie Wunderle, President PH. Wunderle, Inc. 8th & Somerset Streets Philadelphia, PA 19133	J. W. Howard, President Pierce Food Products 482 N. Wilwaukee Wheeling, IL 60691	C. H. Price, II, President Price Candy Company 2 W. 39th Street Price Building Kansas City, MO 64111
R. G. McGovern, President Pepperidge Farm, Inc. Westport Avenue Norwalk, CT 06851	Terrance Hanold, President The Pillsbury Company 608 Second Avenue, South Minneapolis, MN 55402	President Prince Macaroni of New Jersey, In 6575 Chestnut Avenue Pennsauken, NJ 08110
Donald M. Kendall, President PepsiCo, Inc. Purchase, NY 10577	Ronald Pell, President, Chief Engineer & Works Mgr. Plainwell Canning Co. Plainwell, MI 49080	Howard J. Morgens, President The Procter & Gamble Co. Box 599 Cincinnati, OH 45201
Mr. C. P. Kassens Perk Foods Company 500-10 N. Dearborn Chicago, IL 60610	Mr. V. A. Sarni Industrial Chemical Division PPG Industries, Inc. One Gateway Center Pittsburgh, PA 15222	Harry McGivney, Vice Pres. Sales & Marketing The Pure Food Company, Inc. 746 Mamaroneck Avenue Mamaroneck, NY 10543
Shirley Georgi, President Peschke Sausage Company 18615 Sherwood Detroit, MI 48234	Mr. Marvin F. Preiser Polak's Frutal Works, Inc. 33 Sprague Avenue Middletown, NY 10941	Willard Brown, President Purity Baking Co., Inc. 1171 N. Water Street Decatur, IL 62523

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Robert D. Stuart, Jr., Pres/CEO The Quaker Oats Company Merchandise Mart Plaza Chicago, IL 60654	R. L. Redfearn, President Redfearn Meats, Inc. 750 Eleventh Street, N.W. Atlanta, GA 30318	R. W. Stevens, Exec. V. P. Riviana Foods Inc. Box 2636 Houston, TX 77001
Mr. Robert L. Schaus Quality Bakeries of America, Inc. 120 West 42nd Street New York, NY 10036	James H. Wille, President Red Owl Stores, Inc. 215 East Excelsior Avenue Hopkins, MN 55343	Mr. J. G. Roberts Roberts Dairy Company 4469 Farnam Street Omaha, NE 68101
Robert D. Lewis, President Queen Anne Candy Company 604 Hoffman Street Hammond, IN 46320	Edward C. Steele, President The Red Wing Company 196 Newton Street Fredonia, NY 14063	H. Raymond Robinson, President Robinson Canning Co., Inc. P. O. Box 4248 New Orleans, LA 70118
R. C. Livingston, President Rainbo Baking Co. of Phoenix 738 W. Van Buren Street Phoenix, AZ 85001	Earl K. Manhold, Jr., President Reed Candy Company 1245 Fletcher Street Chicago, IL 60657	President Rock Creek Ginger Ale Co., Inc. 500 Penn Street, N.E. Washington, D.C. 20002
W. R. Morton, President Rainbo Baking Co. of Houston 4100-06 Leeland Avenue Houston, TX 77023	Harold S. Mohler, President H. B. Reese Candy Co., Inc. Route 422 West Hershey, PA 17033	Alvin H. Brown, President Rogers Candy Company 315 West Mercer Seattle, WA 98119
W. R. Palmer, President Rainbo Bakery Co. of San Antonio 1919 N. Comal Street San Antonio, TX 78206	Mr. M. P. Kerins Reichhold Chemicals, Inc. 525 N. Broadway White Plains, NY 10602	C. H. Ballard, Exec. V. P. Rogers Walla Walla, Inc. 7th and Rose Streets Walla Walla, Washington 99362
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R. Hal Dean, Chairman & CEO Ralston Purina Company 835 South 8th Street St. Louis, MO 63102	A. H. Galloway, Chairman & CEO R. J. Reynolds Industries, Inc. Winston-Salem, NC 27102	Mr. H. L. Dreyer Roweat Baking Company 2012 W. 62nd Street Los Angeles, CA 90047
Harry G. Slife, President/CEO The Rath Packing Company Box 330 Waterloo, IA 50704	C. M. Mapes, Vice President Reynolds Metals Company 6601 Broad Street Richmond, VA 23230	William C. Durkee, Pres./CEO Royal Crown Cola Company P. O. Box 1440 Columbus, GA 31902
Mr. Henry Lewis, Exec. Cons. Real Fresh Milk, Inc. Daisy Fresh Division 11814 Otsego N. Hollywood, CA 91607	Robert E. Rich, President Rich Products Corporation 1145 Niagara Street Buffalo, NY 14213	Frank Rudd, President Roman Products Corp. 330 Phillips Ave. P. O.Box 2003 South Hackensack, NJ 07606

EXHIBIT 23

18

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Quentin Renolds, Chmn. & CEO Safeway Stores, Inc. P. O. Box 1889 Oakland, CA 94604	A. J. Brown, President Schulze & Burch Biscuit 1133 W. 35th Street Chicago, IL 60609	J. B. St. Clair, President Shell Chemical Company 50 W. 50th Street New York, NY 10020
J. M. Sanders, President Fred Sanders 100 Oakman Boulevard Detroit, MI 48203	Ray Schweigert, President Schweigert Meat Co., Inc. 2605 Emerson Avenue, North Minneapolis, MN 55411	H. Delmer Robinson, Jr., Pres. Shenandoah Valley Apple Corp. P. O. Box 435 Winchester, VA 22601
B. Roberts, President San Joaquin Bakeries 160 L Street Fresno, CA 93721	H. H. Bresky, President Seabord Allied Milling Corp. 200 Boylston Street Newton, MA 02167	R. O. Shirk, President Shirk Products Inc. 505 N. Prairie Street Bloomington, IL 61701
W. Harlow Waggoner, President Santa Clara Packing Co. 620 North 8th Street P. O.Box 1149 San Jose, CA 95108	Edward L. Morin, Vice President Seabrook Farms Company, Inc. Seabrook, NJ 08302	Leon C. Jones, President J. R. Simplot Company Food Processing Division P. O. Box 1059 Caldwell, ID 83605
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EXHIBIT 23
17

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EXHIBIT 23

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EXHIBIT 23

21

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Louis A. Bantle, President United States Tobacco Co. 100 W. Putnam Avenue Greenwich, CT 06830	David Brody, President Van Brode Milling Co., Inc. 406 Drury Lane Beverly Hills, CA 90213	Louis E. Kovacs, President Vitamins, Inc. 809 West 58th Street Chicago, IL 60621
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EXHIBIT 23

22

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23

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Mr. T. T. Miyahara
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EXHIBIT 24

FOOD ADDITIVES

Industry Survey of Production and Use of GRAS Substances

The Commissioner of Food and Drugs is conducting a comprehensive study of individual substances that have been listed in § 121.101 *Substances that are generally recognized as safe* and those that were sanctioned through Food and Drug Administration action, meat inspection action, or poultry products inspection action prior to passage of the food additives amendment of 1958 (Public Law 85-929).

Knowledge of the consumer exposure resulting from use of each of these substances is fundamental to the Commissioner's decision about the toxicity data necessary to support continued safe use of such substances in food. Accordingly, the Commissioner has contracted with the National Academy of Sciences to conduct a comprehensive survey of the production and use of such substance. The Academy will accomplish this survey by providing a questionnaire to all producers, formulators, and users of these substances who can be located through various trade association lists and other sources. The questionnaire provides for identifying and reporting any use of prior sanctioned items to aid in determining whether they are safe under their conditions of use.

There is no intent to overlook anyone who can supply information on the use of these substances. This notice is published for the purpose of announcing this survey and informing the public that the questionnaires were sent out beginning about July 15, 1971. If anyone who wishes to respond has not received a questionnaire within a reasonable time thereafter, he should request a questionnaire from the Subcommittee on GRAS Review, Food Protection Committee, National Academy of Sciences, National Research Council, 2101 Constitution Avenue NW., Washington, D.C. 20418, Attention Mr. Durwood Dodgen.

The Academy will receive and process the information and provide the Commissioner with a summary of the total production of the specific substances and the amounts used in food. Individual responses will be retained by the Academy and not provided to the Food and Drug Administration.

Dated: October 9, 1971.

CHARLES C. EDWARDS,
Commissioner of Food and Drugs.

[FR Doc.71-15459 Filed 10-22-71;8:47 am]

EXHIBIT 25

Industry Briefing On The GRAS Questionnaire

THURSDAY, MAY 27, 1971

STARLIGHT ROOF, WALDORF-ASTORIA, NEW YORK CITY

7:30-9:00 a.m.	*Registration and Coffee, Distribution of Briefing Materials*
9:00-9:20 a.m.	*The Need for an Orderly Review of the GRAS List* William O. Beers, President, Kraftco Corporation
9:20-9:40 a.m.	*The GRAS Review—An Overall Perspective* James D. Grant, Deputy Commissioner, FDA
9:40-10:00 a.m.	*The Mechanics of the GRAS Questionnaire* Durward Dodgen, Staff Officer, National Research Council
10:00-10:20 a.m.	*Coffee Break*
10:20-10:50 a.m.	*Practical Tips on Completing the Questionnaire* Richard L. Hall, Ph.D., Vice President, Research & Development McCormick & Company Walter H. Meyer, Associate Director, Food Product Development The Procter & Gamble Company
10:50-12:00 noon	*Question and Answer Session on Questionnaire Completion—Panel* Virgil O. Wodicka, Ph.D., Director, Bureau of Foods, FDA Alan T. Spiher, Jr., Esq., Project Manager, GRAS Review Durward F. Dodgen Richard L. Hall Walter H. Meyer
1:00-3:00 p.m.	*Luncheon—Gold Room* Association Representatives, Speakers, and Invited Press

REGISTRATION FORM

Registration: $10.00 per person

☐ I will attend.

Name _____ Title _____ Company _____

Address _____

City _____ State _____ Zip _____

☐ Others attending from my Company include:

Name _____ Title _____ Name _____ Title _____

Name _____ Title _____ Name _____ Title _____

RETURN REGISTRATION TO: Food Industry Briefing Committee
1425 K St., N.W., Suite 900, Washington, D.C. 20005

EXHIBIT 25

Cooperating Associations

AMERICAN FROZEN FOOD INSTITUTE
AMERICAN MEAT INSTITUTE
COOPERATIVE FOOD DISTRIBUTORS OF AMERICA
EVAPORATED MILK ASSOCIATION
FLAVOR AND EXTRACT MANUFACTURERS ASSOCIATION OF THE U.S.
GROCERY MANUFACTURERS OF AMERICA, INC.
INSTITUTE OF SHORTENING & EDIBLE OILS, INC.
INTERNATIONAL ASSOCIATION OF ICE CREAM MANUFACTURERS
INTERNATIONAL FOODSERVICE MANUFACTURERS ASSOCIATION
MANUFACTURING CHEMISTS ASSOCIATION
MAYONNAISE & SALAD DRESSINGS INSTITUTE
MILK INDUSTRY FOUNDATION
MILLERS' NATIONAL FEDERATION
NATIONAL-AMERICAN WHOLESALE GROCERS' ASSOCIATION
NATIONAL ASSOCIATION OF FOOD CHAINS
NATIONAL ASSOCIATION OF MARGARINE MANUFACTURERS
NATIONAL ASSOCIATION OF RETAIL GROCERS
NATIONAL CANNERS ASSOCIATION
NATIONAL PRESERVERS ASSOCIATION
SALT INSTITUTE
WINE INSTITUTE

Registration: $10.00 per person

☐ Check enclosed

☐ Bill me

Make checks payable to:
Food Industry Briefing Committee

EXHIBIT 26

FEMA
Fall Symposium
October 21, 1971

PROGRAM CHAIRMAN — Dr. J. Frank Perkins

MORNING

9:30 a.m.—Invocation: The Reverend Philip R. Newell, Acting Director, The Council of Churches, Greater Washington

Introduction of President:
Dr. J. Frank Perkins,
Chairman, Program Committee

Welcome: Dr. Richard L. Hall,
President

GRAS Review

Surveys of GRAS Substances,
Dr. Jack K. Krum, Chairman,
Food Additives Committee

NAS/NRC Survey:
Status Report:
Mr. Durwood F. Dodgen

F.E.M.A. Survey:
Status Report:
Dr. Jack K. Krum

Coffee Break

FDA Gras Review:
Dr. Albert C. Kolbye, Deputy Director, Bureau of Foods, Food and Drug Administration

Questions and Answers on GRAS Review Panel: Dr. Albert C. Kolbye, Mr. Durwood F. Dodgen, Dr. Richard L. Hall, Eugene P. Grisanti, Esquire, Dr. Jack K. Krum, Daniel R. Thompson, Esquire.

12 Noon—Reception—Hawaikiki Pool

Luncheon—The Savoy Room

AFTERNOON

2:00 p.m.—International Organization of the Flavor Industry: Mr. F. H. P. Trip, President, I.O.F.I.

Introduction by:
Eugene P. Grisanti, Esquire

Public Relations

F.E.M.A. Public Relations Committee:
Mr. Oliver W. Hickel, Jr.,
Chairman

Food Industry:
Dr. Richard L. Hall

Coffee Break

Current Problems Panel Discussion
FDA Proposal on Gras Regulations, Vanilla Standards Enforcement, Food Colors, BVO, and subjects raised from the floor

Panel: Daniel R. Thompson, Esquire, Moderator; Dr. Frank M. Strong, member F.E.M.A. Expert Panel; Mr. James E. Noonan, Chairman, Certified Color Industry Committee; Dr. Earl E. Lockhart, Chairman, BVO Committee; Dr. Richard L. Hall, Eugene P. Grisanti, Esquire

Business Meeting

Nominations, Elections & Tenure Committee:
Mr. William T. Miller, Chairman

Old Business

New Business

EXHIBIT 27

Exhibit 27--Industry Response to Overall GRAS Survey*

Survey	No. of Firms Reporting[1]	No. of Substances Reported[2]	No. of Reports Submitted[3]
NAS (regular foods)[4, 5]	000	000	0,000
NAS (infant formula products and baby foods)[4]	00	000	000
FEMA	000	0,000	00,000
Chewing Gum	00	000	000
Highly Flavored Candy	00	000	000
		Total No. Reports	00,000

[1]The number of firms in this column cannot be added to obtain an unduplicated total since many firms participated in more than one survey.

[2]The number of substances in this column cannot be added to obtain an unduplicated total since many substances were common to more than one survey.

[3]No. of Reports indicates: number of questionnaires received in NAS survey; or sum of number of substances reported by each firm in the FEMA survey; or sum of number of substances reported by each firm per product in the subsurveys.

[4]Includes questionnaires received in the NAS pilot survey.

[5]Includes a number of reports submitted as a group by the United States Brewer's Association on behalf of its members and members of the Brewer's Association of America.

*The data for this table will be supplied after the data processing is completed. DFD 9-29-72

EXHIBIT 28

NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY OF SCIENCES NATIONAL ACADEMY OF ENGINEERING

2101 CONSTITUTION AVENUE WASHINGTON, D.C. 20418

FOOD PROTECTION COMMITTEE
OF THE FOOD AND NUTRITION BOARD

July 13, 1972

MEMORANDUM TO COMPANY CODE NO. _____

Please examine the enclosed computer printout data sheet to determine if your levels of use have been reported correctly. All levels should have been reported on the basis of the concentration of the substance in the finished food as consumed, not on the basis of the levels added to mixes, concentrated bases, intermediate products, etc. If necessary, please correct your usage levels to show concentrations of the additive in the food as consumed.

It is most important that we receive your corrected usage levels as soon as possible, preferably by return mail. Return only one copy and keep the duplicate for your records. To facilitate your reply, an addressed envelope is enclosed. If you find that the data in the printout are correct, we would still appreciate your initialing one copy and returning it to us for the record.

If you cannot return the corrected data sheet within 10 days, please call me at (202) 961-1537.

Your further cooperation in this project will be appreciated.

Very truly yours,

DFDodgen

Durward F. Dodgen
Staff Officer

DFD/vtc
Enclosure

EXHIBIT 29

NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY OF SCIENCES NATIONAL ACADEMY OF ENGINEERING

2101 CONSTITUTION AVENUE WASHINGTON, D.C. 20418

FOOD PROTECTION COMMITTEE
OF THE FOOD AND NUTRITION BOARD

June 6, 1972

NAS GRAS Survey

Company Code No. _____

Dear

The data from the questionnaires you returned on the use of GRAS substances in foods have been entered on magnetic tape, and an initial computer printout of selected usage level reports is enclosed in duplicate.

The printout includes only those substances on which we believe you may have reported usage levels incorrectly. For the most part, these are your reports on substances used in intermediate food products such as dry mixes, concentrated bases, etc., that are eventually diluted in some manner or mixed with other ingredients before the final food is consumed.

Our survey instructions indicated that usage levels should be reported on the basis of the foods as consumed, and it is quite likely that you made your reports on this basis. To be certain, however, that the data you reported are valid, we ask that you check the printout as follows:

> Have you reported all usage levels as they occur in the foods as consumed? In other words, are the levels you reported on the basis of the foods after dilution or mixing with water, milk, or some other ingredient (correct way); or have they been reported on the dry or undiluted basis (incorrect way)?

After making the above checks, please correct one copy of the printout as necessary (preferably using red-tip pen) and return it within the next 10 days. If you find that the data in the printout are correct, we would still appreciate your initialing one copy and returning it to us for the record.

Your further cooperation in this project will be greatly appreciated.

Very truly yours,

D F Dodgen

Durward F. Dodgen
Staff Officer

DFD:vtc
Enclosure

EXHIBIT 30

Exhibit 30--Members of Subcommittee of Expert Flavor Chemists of the FEMA Food Additives Committee

James J. Broderick, Chairman
H. Kohnstamm & Co., Inc.

Eugene S. Buday
Polak's Frutal Works

Anthony J. Clemente
Fritzsche, Dodge & Olcott, Inc.

Robert J. Eiserle
Fritzsche, Dodge & Olcott, Inc.

Alfred E. Goossens
Naarden, Inc.

Earl J. Merwin
McCormick & Company, Inc.

Shlomo Reiss
Ungerer & Company

Albert V. Saldarini
Norda Essential Oil & Chemical Co.

EXHIBIT 31

FLAVOR AND EXTRACT MANUFACTURERS' ASSOCIATION
OF THE UNITED STATES

1001 CONNECTICUT AVENUE N.W.
WASHINGTON, D. C. 20036
202 659-4660

DANIEL R. THOMPSON
ATTORNEY & EXECUTIVE SECRETARY

Re: F.E.M.A. Flavor Additive Survey

The F.E.M.A. Flavor Additive Survey has been extremely successful. The response of your company and the other participants in the Survey has produced a compilation of data requiring 16,000 key-punched data cards.

Before the compilation is reviewed, in summary form, by the F.E.M.A. Expert Panel, steps are being taken to remove any errors in the data and to make sure that all the usage data has been calculated on the same basis. I want to assure you that throughout this review, every action is being taken to preserve the confidentiality of your being identified with the data you submitted.

I would like to direct your attention to the attachment to this letter, which contains excerpts from information submitted in your survey.

These figures were noticeably higher than the responses of the other participating companies. The data, as you have reported it, appears to exceed the normal manufacturing practices of the other companies using such substances. We would appreciate your re-calculating the usage levels and otherwise confirm the data. Perhaps your original calculations did not account for the use of the substances as finally diluted in finished foods; we request that you not simply report the usage levels in the flavor but that you adjust the usage levels to reflect the composition in the finished foods, as consumed.

Would you please advise me, in writing, of your re-analysis at your earliest convenience, but no later than July 17, 1972.

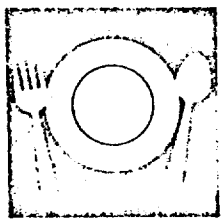
I appreciate your willingness to participate in the survey and invite you to contact me should you have any questions or comments.

Very truly yours,

Roger D. Middlekauff

RDM/sk
Attachment

EXHIBIT 32A



A BRIEF HISTORY OF THE NATIONAL MENU CENSUS

1. A need recognized

Prior to 1958, definitive information on what happened to a food item once it entered the home was lacking. Was it used primarily as a basic menu item? an ingredient? an additive? At what meals was it served most often? how often? Who in the family ate it? who didn't? With what other dishes was it served most frequently? Was it used differently by different types of families? Did they use it primarily as a main meal item? as a snack? To what extent was it used in carried lunches? Did usage vary sharply according to the season of the year? Was it served more or less often on cold days? on hot days?

Along with information on specific food products, there was a great need for related information to point the way for possible new items or improved marketing of existing items. What dishes were served most often when guests were present? What snacks were eaten most often with milk? with coffee? with beer? What soft drink flavors were served most often with ice cream? What kinds of crackers or sandwiches were served most often with different varieties of soup? Which families were the "from scratch" cake bakers? which ones used mixes? which ones bought cakes ready made? What meat dish was served most often at Sunday dinner? on different holidays? at outdoor barbecues?

Obtaining even a minute part of this information required costly and time-consuming special studies which frequently raised more questions than they answered. What was neded was an industry-supported study of a representative sample of U.S. families to determine how they prepared, served, and consumed every food item, in whatever form, on every day of the year.

The data gathered had to be so complete that essential facts would be available to answer unanticipated marketing questions as well as existing ones. It had to be stored in a way that the information required would be available quickly and unaccompanied by unrelated or unwanted data. It had to be reported in a way to permit meaningful and rapid interpretation.

Furthermore, the National Menu Census would have to be conducted at regular intervals to bring the food industry up-to-date on current food preparation, serving, and consumption patterns of U.S. families, to enable marketing men to spot new food usage trends and to chart the inroads of new products introduced in the intervening period.

2. Bridging the information gap

On July 1, 1957, after years of preparation, the Market Research Corporation of America, with the cooperation of four underwriters — General Foods Corp.; General Mills Inc.; The Pillsbury Co.; and Campbell Soup Co. — pretested the concept and then moved ahead into the full study — The First National Menu Census.

This cooperation between top food industry marketing tacticians and long range planners with MRCA's own experienced research personnel made the study an exceptionally useful and meaningful instrument to guide executive decision-making. Over and above the talents of the underwriting companies and MRCA, the Menu Census benefitted from the contributions of a unique inter-disciplinary group consisting of home economists, sociologists, psychologists, physicians, pediatricians, dental surgeons, and food chemists.

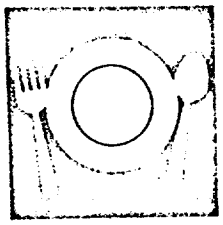
3. Industry-wide acceptance

Virtually from the day the field work on the First National Menu Census was completed on June 30, 1958, the degree of usage of the study was unprecedented in the food industry. Not only did the original underwriters and three additional full subscribers utilize the study extensively but over 50 other companies made use of selected portions of the Menu Census.

This extensive use of Menu Census data in connection with marketing action continued unabated with the completion of the Second National Menu Census on June 30, 1963.

Interest in the Third National Menu Census, to be completed on June 30, 1968, has surpassed that of the previous two studies. Most major food advertisers have already become full subscribers. These companies include:

Beech-Nut Life Savers Inc.
Best Foods, Division of Corn Products Sales Co.
Campbell Soup Company
General Foods Corp.
General Mills Inc.
H. J. Heinz Company
Thomas J. Lipton Inc.
National Biscuit Company
National Dairy Products Corp.—Kraft Foods
Pet Incorporated
The Pillsbury Company
Quaker Oats Company
Ralston Purina Company
Standard Brands Inc.



OBTAINING 30 MILLION FOOD FACTS

The National Menu Census is carefully planned to provide the most complete, meaningful, and statistically reliable data possible.

Four thousand families, a sub-sample of the 7500-family National Consumer Panel, participate in the study for 14-day periods. Each day another group of families begins reporting and continues for 14 consecutive days. On any given day, 150-160 households are reporting. Over a three-month period, 1000 families are involved, making possible meaningful seasonal comparisons.

The sample selection is controlled by family size, age of housewife, city size, region and income group. Households are a statistically representative cross-section of all U.S. households in 48 states. Alaska and Hawaii are excluded.

Because the families are part of the National Consumer Panel, extensive demographic information is available to measure food consumption by different family characteristics. Additionally, menu preparation and food consumption data from the Menu Census can be correlated with food product purchasing records from the National Consumer Panel.

Information obtained each day from Menu Census households includes:

Each menu item served at the morning, midday, evening meals . . . snacks prepared or eaten at home and when eaten . . . contents of carried lunches . . . menu items eaten away from home and where eaten.

Whether item was used as basic dish . . . ingredient . . . additive.

Items added to menu item at time of serving or eating.

Ingredients which may have been used to prepare home menu item.

Use of cooking fats, oils as frying agents.

What menu item was served as main dish, side dish, dessert, etc.?

Family members present . . . guests present.

Who was on a diet?

Who ate item? who didn't? who skipped meals?

How menu item was prepared (heated, chilled, broiled, baked etc.)

Equipment or appliance used?

Brand name of menu item, if any.

Type used (canned, frozen, liquid, dried, powdered, etc.)

Time meal was eaten.

Maximum temperature that day

Where in home meal was eaten

Was item made from recipe? Where was it obtained?

Use of leftovers

This information is coded, processed and stored on punched cards and magnetic tape. By June 1968, over 250,000 family meals and 750,000 personal meals involving a total of 3 mililon food items will be recorded.

REPORTING THE FACTS

Findings of the National Menu Census are available through base reports and special reports.

Base reports

Base reports contain considerable benchmark information on each product category and sub-category in the Menu Census.

One type of base report lists:

The number of households serving product within a two week period

Whether product was used as base item, additive or ingredient

Total times served in two-week period

Times served per household serving

Total number of person exposures and eatings or refusals of the product

Another type of base report breaks down meals servings for the product by:

Day of week

Meal identity (morning, midday, evening, snack, carried lunch)

Kind of meal (guests present or not)

Place eaten

Dish position (main dish, dessert, other)

Households using the product and total servings are further broken down according to:

Census region
Metro area size
Family income
Education of family head
Occupation of family head
Housewife employment status
Household size
Presence of children by age
Age of housewife
etc.

Additionally, family members eating the product are broken down by age and sex and diet status.

Both quarterly and annual base reports are available.

Use of base reports

These initial facts can be useful in themselves or they can open the door for further analysis of the product's use including: frequency of use in specific dishes, frequency of "association" with other specific products, frequency of serving in specific form (baked, broiled, fried etc.).

Special reports

Special reports answer specific questions or series of questions. These questions may be suggested by data contained in a base report. Or, they may arise out of the need for specific information required by top management, marketing and advertising executives, promotion directors or home economists.

Assistance in phrasing questions for special reports in order to obtain specific information required at the lowest possible cost is available from MRCA's marketing departments.

Examples of some of the thousands of questions for which answers are provided by the National Menu Census are:

How do fish servings on Friday by Catholic families in 1967 compare with those of 1962?

What other menu items are most associated with our product when it is served in high income homes? medium income homes? low income homes?

What 20 items appear most often in carried lunches of families in various regions of the country? Break down by season of the year.

What are the ten most popular dishes eaten by persons on a diet?

What do teen-agers eat for snacks on week day afternoons? Week ends?

What 20 desserts are served most often in each season of the year? To what extent are they homemade? How big is the homemade cake market in relation to commercial cakes or cakes made from mixes? What flavors of cakes are important in each?

To what extent is my "already-complete" product further changed or modified by the housewife before serving?

What kind of potatoes are served most often with fried chicken? with lamb? roast beef?

What sandwiches are most often made with what breads?

What main course food or entrees are most often prepared in the oven? On top of the stove?

How are bananas used in the home? who eats them? at what meals? what percentage of the time are they eaten separately? with what are they combined? how often are they part of a dessert?

Out-of-home eating

With the Third National Menu Census, considerable information on out-of-home eating will be available to executives interested in exploiting opportunities in the growing institutional food field.

Special reports will be available to answer such questions as:

When the family eats at a restaurant, what are the ten main dishes ordered most frequently? the ten favorite desserts?

What do home "breakfast skippers" eat away from home later in the morning or at lunch?

What sandwiches do white collar husbands order most frequently for lunch when working? blue collar husbands?

What main dishes do housewives order most frequently when they eat out during the day? desserts? beverages?

What kinds of snacks do teen-agers buy most at school and elsewhere when away from home?

Back data

Data from the First and Second Menu Censuses are also available where additional benchmark information is required.

Product purchase data

Data on product and brand purchases by families in the National Menu Census during the quarter they report or other appropriate period are available from MRCA's National Consumer Panel.

EXHIBIT 32B

FOOD INTAKE AND NUTRITIVE VALUE OF DIETS OF MEN, WOMEN, AND CHILDREN IN THE UNITED STATES, SPRING 1965

A Preliminary Report

By Consumer and Food Economics Research Division, Agricultural Research Service, United States Department of Agriculture

HIGHLIGHTS

A survey of the food intake of a representative sample of 14,500 men, women, and children in the United States, in the spring of 1965, showed that:

1. Average diets for most sex-age groups approached (90 to 100 percent) or were above the Recommended Dietary Allowances set by the Food and Nutrition Board of the National Academy of Sciences-National Research Council in 1968 for calories and five of the seven nutrients studied--protein, vitamin A value, thiamine, riboflavin, and ascorbic acid. Calcium and iron were the nutrients most often found below allowances.

2. Calcium and iron furnished by the day's food were more than 30 percent below recommended allowances for several groups, especially of girls and women. The iron in diets of infants and children under 3 years was about 50 percent below recommended amounts. However, the recommended allowances for iron for some age groups, as indicated by the Food and Nutrition Board, are not expected to be met by ordinary food products alone. The Board indicates that ordinary food products might be expected to provide 6 mg. of iron per 1,000 calories. Diets of children aged 1 through 8 years and boys and girls 9 through 19 years did not contain this much iron.

3. Infants had intakes of calories and several nutrients well above the RDA's, yet the food of infants from birth through 11 months furnished less than the recommended amounts of iron, and that of infants under 2 months, less than recommended amounts of ascorbic acid.

4. In general, the diets of males met the allowances for more nutrients than the diets of females. Except for iron, the diets of children under 9 years of age were above recommendations. The diets of adolescent girls and women were below recommended amounts of calcium, iron, and thiamine, and for some age groups, vitamin A value, and riboflavin. Older men also had diets low in calcium, vitamin A value, riboflavin, and ascorbic acid.

5. The proportion of calories derived from fat ranged from an average of 39 percent for infants to 45 percent for men 20-64 years.

6. For persons in the income class under $3,000, and for persons in the Southern Region, the nutrients most often found below recommended allowances were ascorbic acid and vitamin A value, in addition to calcium and iron.

7. Quantities of most foods eaten by men and boys were larger than those eaten by women and girls of the same age. Exceptions were tomatoes and citrus fruit, dark-green and deep-yellow vegetables, and other vegetables (except potatoes) and fruits.

8. For most foods, consumption peaked for males in the late teens and early adulthood. There was less difference by age in amounts of food eaten by females than by males. There was less difference among age groups in consumption of vegetables and fruits, than in consumption of higher calorie foods.

9. Use of vitamin or mineral supplements during the 24-hour period for persons over 3 years of age ranged from about 12 percent for girls 15-17 years and boys and men 15-34 years to about 34 percent for men and women 75 years and over. Over half (55 percent) of the infants under 1 year and 43 percent of the young children 1 through 2 years used vitamin or mineral supplements. The nutritive content of these supplements was not obtained nor taken into account in the calculation of the nutritive value of diets as reported above.

Findings of the survey provide new information on diets of family members and are especially useful in nutrition education programs. No conclusions can be drawn on the existence of hunger or malnutrition, however, because no information on the nutritional status of individuals was obtained. Nor should failure to meet the allowances be interpreted as need for indiscriminate fortification of foods with vitamins and minerals or self-prescribed supplementation of individual diets.

SCOPE AND NATURE OF THE SURVEY

As part of the nationwide household food consumption survey made by the U.S. Department of Agriculture in 1965-66, information was obtained on the food intake for one day of individual members of the households interviewed. This is the first time estimates of the food eaten in a 24-hour period by individuals have been obtained on a nationwide basis. Approximately 14,500 reports of food intake were collected for the men, women, and children included in the study. The interviews were distributed over the 13 weeks of spring 1965 (April, May, and June).

The sample of approximately 6,200 households, of which the 14,500 individuals were members, was drawn to be representative of all housekeeping households in the United States. 1/ After the household information was obtained, respondents were

1/ These households constitute the basic cross section of the 7,500 household sample described in Report 1, Food Consumption of Households in the United States, Spring 1965.

requested to provide information about the food eaten by family members both at home and away from home. Only half of the persons between 20 and 64 were included. To compensate for the subsampling and to provide proper representation in the population, information for persons in this age group was tabulated twice. The weighted count of persons is 19,245, the sum of the number of persons shown in the tables.

Information on food intake was obtained by the recall method for the day (midnight to midnight) preceding the interview. A 24-hour period was chosen in order to include all between-meal food or snacks as well as regular meals eaten. Data were collected over all days of the week including Saturday and Sunday.

Experienced interviewers collected the data for the study. The respondent, usually the homemaker in the family, gave information on the food eaten by all members of the household being studied. If the respondent was unable to give information on part or all of the food eaten by a household member, an effort was made to obtain the required information from the household member concerned.

Homemakers were asked the following questions for each member of the household. What foods and beverages were eaten (including information on preparation)? How much of each; the time of day eaten; and was food eaten at home or away from home?

The nutritive value of the foods was computed mainly from U.S. Department of Agriculture Handbook No. 8, Composition of Foods: Raw, Processed, Prepared, rev. 1963, and unpublished data of the Consumer and Food Economics Research Division. Information was obtained on whether individuals used any vitamin or mineral supplements on the day of the report. Detailed information on kind and amount of supplement was not asked and could not be added to the nutritive content of the day's food.

The data are summarized in average quantities of foods, percentage of persons using those foods, the average quantities of nutrients in all foods eaten, and the percentage of the total nutrient contributed by each major group of foods. These measures were computed for each group of persons classified by age and sex and were based on all persons in each cell. These statistics balance high consumers with low, overestimates with underestimates, reflect availability of food in the market, and represent infrequently used food proportionately.

Quantities of food and nutritive values included in this report represent food from all sources and for both urban and rural classifications. Separate tabulations for food from home food supplies and food eaten away from home and for urban and rural households will be included in later reports. Data are given for the North and South only. The North includes the Northeast, the North Central Region, and the West. The sample was not large enough to warrant separate tabulations for each of these three regions as was done for the household data.

Distributions to show dispersion of consumption of foods and nutrients have not been computed because food used in a single day may not be a good indicator of the quality of

an individual's diet. The data in this report are expected to be especially useful in comparing levels of consumption of sex-age groups in the United States as a whole, and within regional, urbanization, and income classes.

In the survey, no information was obtained on the nutritional status of individuals. Hence no conclusions can be drawn concerning the existence of hunger or malnutrition. Nor should failure to meet the allowances be interpreted as need for indiscriminate fortification of foods with vitamins and minerals or self-prescribed supplementation of individual diets. Results do imply the need for expanded efforts in nutrition education.

The results of this study add much to the nutritional appraisal of U.S. diets based on household food supplies. They will be useful in conducting educational and research programs, analyzing the demand for agricultural products, providing levels of food usage as a guide in regulatory programs, and guiding farm and food policies.

COMPARABILITY WITH HOUSEHOLD SURVEY

No direct comparison can be made of the individual food intake for 1 day and the food consumption from the household report of 7 days as the data are not on the same basis. Principal differences in procedures and handling of the data for the survey of individual household members (this report) and the household survey (Household Food Consumption Survey 1965-66 Reports 1-5 and Preliminary Reports 1-3) were:

Individual	Household
1. Food consumption recorded was food actually eaten.	1. Food consumption recorded included "food available for consumption," including plate waste, food fed to pets, and the like.
2. Food was on "edible portion" basis.	2. Food was on "as purchased" basis or "as brought into the kitchen."
3. "Average per person" was calculated from the food reported eaten by a specific sex-age group.	3. "Average per person" was the household food supply divided equally among all persons eating.
4. Food consumption was for 1 day.	4. Food consumption was for 7 days.
5. Food was reported from home food supplies and food eaten away from home.	5. Food from home food supplies only was reported but adjustments were made to account for food eaten away from home, assuming that meals eaten away were equivalent to meals at home.

Individual	Household
6. Homemaker estimated for most of the household members, both for food from home supplies and food away.	6. Homemaker reported on food she was responsible for buying and preparing for household use.
7. Food combinations and mixtures were included in food group representing their main ingredient--such as meat sandwiches in the meat group; beef and vegetable stew in the meat group; egg salad sandwiches in the egg group; tomato salad with lettuce and dressing in the tomato group.	7. Foods were reported separately that may later have been combined--such as bread and meat for sandwiches; beef and vegetables for stew; tomatoes, lettuce, and salad dressing for tomato salad.

Exhibit 33A--Correlation and Revision of Food Categories for Use with MRCA, USDA, and Usage Level Data in Computing Food Consumption and GRAS Intakes*

Note 1

Respondents in the NAS and FEMA surveys reported their usage levels on the basis of the food categories preprinted on the respective questionnaires (Exhibits 7, 8, and 19). During data processing, the FEMA usage levels were integrated with the NAS levels, and the FEMA food category numbers were converted to the corresponding NAS category numbers. Respondents in the subsurveys reported their usage levels on the basis of the respective single product category only, i.e., either chewing gum or highly flavored candy. [Note: The subsurvey on highly flavored candy was based primarily on the use of GRAS substances in hard candy and cough drops; for concision, foods in this category are hereinafter referred to as "hard candy."] The subsurvey data were integrated with the other usage level data during processing.

Note 2

In both the NAS and FEMA surveys, respondents were allowed to indicate use of the GRAS substances in food categories not listed in the respective questionnaires. Because of the relatively large number of NAS categories (26 for regular foods, Exhibit 10; 13 for infant formula products and baby foods, Exhibit 11), relatively few NAS respondents found it necessary to specify additional categories. In all of these cases it was possible, during coding of the questionnaires, to place these reports in either one of the existing 28 categories or in one of the following four new categories: hard candy (category 30), chewing gum (category 31), sugar substitutes (category 33), and seasonings and flavors (category 48).

Since the FEMA questionnaire contained only seven preprinted categories, a relatively large number of FEMA respondents indicated usage in the "Other" food category (see sample page from FEMA questionnaire, Exhibit 19). Most of these reports could be assigned to one of the existing or new NAS categories. In those few cases in which the products clearly did not fit into any single category, they were assigned to a new category, miscellaneous and unclassified (category 49). This point is discussed further in Exhibit 50, Note 11.

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*Food categories and category numbers mentioned in this exhibit refer to the category designations used in Exhibits 34-47 and in the printouts on usage levels (Tables 2-5) and daily intakes (Tables 13-15).

Exhibit 33A--Correlation and Revision of Food Categories for Use with MRCA, USDA, and Usage Level Data in Computing Food Consumption and GRAS Intakes*

Note 1

Respondents in the NAS and FEMA surveys reported their usage levels on the basis of the food categories preprinted on the respective questionnaires (Exhibits 7, 8, and 19). During data processing, the FEMA usage levels were integrated with the NAS levels, and the FEMA food category numbers were converted to the corresponding NAS category numbers. Respondents in the subsurveys reported their usage levels on the basis of the respective single product category only, i.e., either chewing gum or highly flavored candy. [Note: The subsurvey on highly flavored candy was based primarily on the use of GRAS substances in hard candy and cough drops; for concision, foods in this category are hereinafter referred to as "hard candy."] The subsurvey data were integrated with the other usage level data during processing.

Note 2

In both the NAS and FEMA surveys, respondents were allowed to indicate use of the GRAS substances in food categories not listed in the respective questionnaires. Because of the relatively large number of NAS categories (28 for regular foods, Exhibit 10; 13 for infant formula products and baby foods, Exhibit 11), relatively few NAS respondents found it necessary to specify additional categories. In all of these cases it was possible, during coding of the questionnaires, to place these reports in either one of the existing 28 categories or in one of the following four new categories: hard candy (category 30), chewing gum (category 31), sugar substitutes (category 33), and seasonings and flavors (category 48).

Since the FEMA questionnaire contained only seven preprinted categories, a relatively large number of FEMA respondents indicated usage in the "Other" food category (see sample page from FEMA questionnaire, Exhibit 19). Most of these reports could be assigned to one of the existing or new NAS categories; those reports that did not clearly fit in into any single category were assigned to an additional new category, miscellaneous and unclassified (category 49). This point is discussed further in Exhibit 50, Note 11.

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*Food categories and category numbers mentioned in this exhibit refer to the category designations used in Exhibits 34-47 and in the printouts on usage levels (Tables 2-5) and daily intakes (Tables 13-15).

Note 3

In order to calculate daily intakes of the GRAS substances, food consumption data were required not only for each of the 28 original regular food categories (Exhibit 10) and the 13 original infant formula product and baby food categories (Exhibit 11), but also for the four new categories (30, 31, 33, and 48) mentioned in Note 2.

The Subcommittee decided that the GRAS intake calculations should be made on the basis of consumption of processed foods only, since the GRAS substances are normally not added to fresh, homemade, or unprocessed foods. For the purposes of estimating food consumption in the total dietary, however, it was also decided that food consumption data should be computed for unprocessed as well as processed foods. Consequently, MRCA and USDA data were obtained for processed and unprocessed (regular) foods in the following categories: fruit (categories 08 and 37), meat (categories 10 and 38), poultry (categories 11 and 39), eggs (categories 12 and 40), fish (categories 13 and 41), vegetables (categories 14 and 42), jams (categories 18 and 43), and soups (categories 21 and 44). In addition, separate data were obtained on fresh milk (category 29, originally part of 05), on white granulated sugar (category 32, originally part of 17), and on instant coffee and tea (category 34, originally part of 23), because of the special, rather limited use of GRAS substances in these foods.

Note 4

The scope of some of the original 28 regular food categories, after restructuring, was changed as explained below:

- Category 05 (originally Milk, Milk Products) after revision contained information only on processed milk products, not on fresh whole and skim milk. New category title: MILK PRODS.

  [Note: Data on consumption of fresh whole and skim milk (new category 29) were obtained but not used in daily intake calculations. This is explained in Exhibit 54, Note 9.]

- Category 15 (originally Condiments, Relishes, Salt Substitutes) after revision contained no information on salt substitutes. New category title: CONDM RELSH.

  [Note: Salt substitutes, along with meat tenderizers, were placed in new category 48 (SEAS FLAVRS), the data from which were subsequently used in daily intake calculations.]

- Category 16 (originally Candy) after revision contained information only on soft candy, not on highly flavored (hard) candy and cough drops. New category title: SOFT CANDY.

  [Note: Highly flavored (hard) candy and cough drops were placed in new category 30 (HARD CANDY), the data from which were subsequently used in daily intake calculations.]

- Category 17 (originally Sugar, Confections) after revision contained information only on confections, icings, frostings, etc., not on white granulated sugar. New category title: CONF FROST.

  [Note: White granulated sugar was placed in new category 32 (GRAN SUGAR), the data from which were subsequently used in daily intake calculations.]

- Category 23 after revision contained no information on instant coffee and tea. Original and final title: BEV TYPE I.

  [Note: Instant coffee and tea were placed in new category 34 (INS COF TEA), the data from which were subsequently used in daily intake calculations.]

- Category 28 (originally Dairy Products Analogs) title changed to: IMIT DAIRY (no other changes in this category).

Note 5

The individual food items in the MRCA census were ultimately assigned to the revised regular food category groups as shown in Exhibit 33B, and to the original 13 infant formula product and baby food category groups as shown in Exhibit 33C. The individual food items in the USDA

survey were assigned to the same categories as were used for the corresponding MRCA food items. [Note: A number of food items on which portion size data were required were not included in the USDA survey; see discussion in Exhibit 41.]

Note 6

The MRCA frequency of eating data on regular foods are shown in Exhibits 34 and 35, and on infant formula products and baby foods in Exhibits 36 and 37. Further explanatory notes on the MRCA data are provided in Exhibit 38.

Note 7

The USDA data on mean portion size of regular foods are shown in Exhibit 39, and of infant formula products and baby foods in Exhibit 40. Further explanatory notes on the USDA data are provided in Exhibit 41.

Note 8

The values on food consumption, computed from the MRCA and USDA data, are shown for regular foods in Exhibits 42, 43, 45 and 46, and for infant formula products and baby foods in Exhibits 44 and 47. Further explanatory notes on food consumption are provided in Exhibit 48.

Note 9

The food consumption data in Exhibits 42-47 were coupled with the usage level data in Tables 2-5 to obtain the daily intakes of each substance as presented in Tables 13-16. Explanatory notes on the methods by which the intakes were calculated are provided in Exhibits 54-56; further comments are provided in the discussion section of the report in Chapters X and XI.

Note 10

A number of usage level reports had to be transferred from one food category to another more appropriate category before the data were processed. This is explained in Exhibit 50, Note 5.

Exhibit 33B--MRCA Codes for Regular Foods

Listed below are the MRCA code numbers for the individual food products that were assigned to the NAS revised regular food categories (see explanation in Exhibit 33A). The code numbers correspond to the list of MRCA individual food products and code numbers shown in the subsequent pages of this Exhibit 33B. The foods listed in this exihibit are for foods eaten in the home; a similar list of MRCA codes was prepared for foods eaten away from home. (Note: Code numbers for infant formula products and baby foods are shown in Exhibit 33C.)

GROUPING OF MRCA IN-HOME FOODS INTO NAS FOOD CATEGORIES

NAS # 01--Baked Goods, Baking Mixes

31/48, 49
35/all
40/all
41/all
42/all
43/all
45/all
73/all
74/all
75/01-69, 81-89
88/50-99
89/28

NAS # 02--Breakfast Cereals

71/all
72/01-29, 40-49

NAS # 03--Other Grain Products, Pastas

30/all

32/08, 17-19, 27, 37-39, 47, 57-59, 67, 77-79, 87, 97-99

33/all 2L. items not known to contain meat, fish, vegetables, or poultry, including: 02, 04, 05, 07-10, 12, 14, 16-19, 22, 27, 40, 48, 49

34/40-49, 53-57, 61

52/40-49

72/30, 31, 50-59, 60-69

75/70-80

77/30-38

NAS # 04--Fats and Oils

53/all

57/all

58/all

89/01-09, 50

NAS # 05--Milk Products (see also # 29)

13/03-42, 44-49

17/01-28

18/all

31/28, 29

85/50-69

89/51-59

NAS # 06--Cheese

13/60-68

28/all

29/50, 51

77/47

89/40-49

NAS # 07--Frozen Dairy Desserts, Mixes

48/all

49/01-03, 10-59

NAS # 08--Processed Fruits, Juices, etc. (see also # 37)

14/01-49, 70, 71, 78-89--but not incl. 5L./2*

15/60-69--but not incl. 5L./0**

50/30-59

52/51

61/all--but not incl. 5L./R***

89/21

NAS # 09--Fruit Ices, Water Ices

49/04, 08

NAS # 10--Meat Products (see also # 38)

21/all--but not incl. 5L./R,X****

22/all--but not incl. 5L./R,X****

23/all

29/30-38, 40-42, 48, 49

31/01-04, 06, 07, 09, 13, 24, 26, 30, 31, 34, 44, 46, 50-53, 56, 57, 61, 64, 66, 70, 72-74, 76-79, 81, 84, 86, 88, 89

32/01-03, 05-07, 09, 11, 13, 15, 20-22, 24-26, 28, 30, 33, 35, 40-42, 44-46, 48, 50, 53, 55, 60-62, 64-66, 68, 70, 73, 75, 80-82, 84-86, 88, 90, 93, 95

33/all 2L. items known to contain meat, including 01, 03, 06, 11, 15, 20, 23, 28, 29-32, 41, 50-55

34/01-19, 60

51/01-09

77/41-44, 49

89/11, 16, 18, 19, 31, 34, 35, 38, 39

---

*Homemade Fresh/Home Canned
**Homemade--Completely/Fresh
***Fresh/Raw
****Uncooked Fresh/Home Frozen

NAS # 11--Poultry Products (see also # 39)

24/all--but not incl. 5L./R,X*

29/43-45

31/05, 12, 27, 32, 37, 47, 54, 59, 67, 71, 80, 87

32/04, 16, 23, 36, 43, 56, 63, 76, 83, 96

33/all 2L. items known to contain poultry if not already incl. in NAS # 10

34/30-39

51/20-29

77/50

89/10, 17, 33

NAS # 12--Egg Products (see also # 40)

26/all--but not incl. 5L./R,X**

33/25, 26

34/62

51/30

89/13

NAS # 13--Fish Products (see also # 41)

25/all--but not incl. 5L./R,X*

31/08, 10, 11, 25, 33, 35, 36, 45, 55, 58, 60, 65, 75, 85

32/10, 14, 29, 34, 49, 54, 69, 74, 89, 94

33/all 2L. items known to contain fish if not already incl. in NAS # 10

34/20-29

51/10-19

77/48

89/12, 15, 30, 32

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*Uncooked Fresh/Home Frozen
**Fresh/Freeze Dried

NAS # 14--Processed Vegetables, Juices (see also # 42)

14/50-69, 72
29/01-29
31/90-99
33/all 2L. items known to contain vegetables if not already incl. in NAS # 10, 11,
34/50, 51
51/32, 38
52/01-39, 50, 52-59
63/all--but not incl. 5L./R,X,O*
64/01-49--but not incl. 5L./R,X,O*
65/all-but not incl. 5L./R,X**
89/20, 22

NAS # 15--Condiments, Relishes, etc.

38/10-29
39/01-04
83/all
87/40-49

NAS # 16--Soft Candy (see also # 30)

80/all
81/01-29, 50-79
82/10-32

NAS # 17--Confections, Frostings, etc. (see also # 32)

44/all
82/01-08, 40-49
87/61-69

NAS # 18--Jams, Jellies, Sweet Spreads (see also # 43)

84/all--but not incl. 5L./1***

---

*Raw Fresh/Home Canned/Home Frozen
**Raw Fresh/Home Frozen
***Homemade

NAS # 19--Sweet Sauces, Toppings, Syrups

85/01-49, 70-99

NAS # 20--Gelatins, Puddings, Fillings

46/all--but not incl. 4L./0 (prepared drink; see # 23)
47/all
50/01-29

NAS # 21--Soups, Soup Mixes (see also # 44)

27/all--but not incl. 5L./5*
51/31

NAS # 22--Snack Foods

76/all
77/20-28, 40, 45, 46, 51-59

NAS # 23--Beverages-Type I (see also # 34)

12/20-38
15/01-59
17/30-49
46/all--only if 4L./0 (see # 20)

NAS # 24--Beverages-Type II

15/70-79
16/all

NAS # 25--Nuts, Nut Products

77/01-19
87/30-39
89/70-89

NAS # 26--Reconstituted Vegetable Proteins

64/50-68

---

*Homemade

NAS # 27--Gravies, Sauces

38/01-09, 30-59
39/05-79

NAS # 28--Dairy Products Analogs

13/43, 50-59

NAS # 29--Milk, Whole and Skim

13/01, 02

NAS # 30--Hard Candy, Cough Drops

81/30-49, 90-99

NAS # 31--Chewing Gum

81/80-89

NAS # 32--Sugar, White, Granulated

87/60

NAS # 33--Sugar Substitutes

87/70-79

NAS # 34--Coffee and Tea

11/all
12/01-19, 40-99

NAS # 37--Fresh Fruits, Juices

14/01-49, 70, 71, 78-89--only if 5L./2*
15/60-69--only if 5L./0**
61/all--only if 5L./R***

*Homemade--Fresh/Home Canned
**Homemade--Completely/Fresh
***Fresh/Raw

NAS # 38--Fresh Meats

21/all--only if 5L./R,X*
22/all--only if 5L./R,X*

NAS # 39--Fresh Poultry

24/all--only if 5L./R,X*

NAS # 40--Fresh Eggs

21/all--only if 5L./R**

NAS # 41--Fresh Fish

25/all--only if 5L./R,X*

NAS # 42--Fresh Vegetables, Potatoes

63/all--only if 5L./R,X,O***
64/all--only if 5L./R,X,O***
65/all--only if 5L./R,X****

NAS # 43--Homemade Jams, Jellies

84/all--only if 5L./1*****

NAS # 44--Homemade Soups

27/all--only if 5L./5*****

NAS # 48--Misc. Herbs, Seeds, Spices, Seasoning Blends, Extracts, Flavorings

86/all
87/01-29

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*Uncooked Fresh/Home Frozen
**Fresh
***Raw Fresh/Home Canned/Home Frozen
****Raw Fresh/Home Frozen
*****Homemade

1L.11 COFFEE [1, 3)

2nd LEVEL

REGULAR

01 Hot*
02 Cold

INSTANT

10 Hot*
11 Cold

DECAFFEINATED

20 Regular-Hot*
21 Regular-Cold
22 Instant-Hot*
23 Instant-Cold
29 Unidentified as to Regular or Instant Decaffeinated

SPECIAL TYPES

30 Espresso-Regular
31 Espresso-Instant
32 Turkish-Regular
33 Turkish-Instant
37 Other Special Types-Regular
38 Other Special Types-Instant
39 Unidentified Special Types

COFFEE COMBINATIONS (NOT BLENDS[2])

40 Hot*
41 Cold

OTHER COFFEE

50 Regular-Hot*
51 Regular-Cold
52 Instant-Hot*
53 Instant-Cold
59 Unidentified Type

UNIDENTIFIED COFFEE

90 Hot*
91 Cold

IL.12 TEA[1)]

2nd LEVEL

HOT

01 Bags
02 Liquid
03 Loose/Packaged
04 Instant
05 Iced Tea Mix
06 Ready to Serve
08 Other Hot Tea
09 Unidentified Hot Tea

COLD/ICED

10 Bags
11 Liquid
12 Loose/Packaged
13 Instant
14 Iced Tea Mix
15 Ready to Serve
18 Other Cold Tea
19 Unidentified Cold Tea

SPECIAL TEA TYPES

20 Jasmine-Hot
21 Jasmine-Cold
22 Jasmine-Ingredient Use
23 Spiced-Hot
24 Spiced-Cold
25 Spiced-Ingredient Use
26 Irish Tea-Hot
27 Irish Tea-Cold
28 Irish Tea-Ingredient Use
37 Other Special Types-Hot
38 Other Special Types-Cold
39 Other Special Types-Ingredient Use

OTHER TEA PRODUCTS (NOT BLENDS)

40 Combination-Hot
41 Combination-Cold

UNIDENTIFIED TEA

90 Bags
91 Liquid
92 Loose/Packaged
93 Instant
94 Iced Tea Mix
95 Ready to Serve
99 Unidentified Completely

EXHIBIT 33B

2nd LEVEL

NATURAL/PLAIN MILK

01 Whole*
02 Skimmed
03 Low Fat (2%)
04 Concentrated
08 Other Natural/Raw

WHOLE MILK DERIVATIVES-NATURAL

10 Condensed
11 Evaporated-Regular[1)]
12 Evaporated-Skimmed
13 Non-Fat Dried/Powdered
18 Other Natural Derivatives

CREAM-NATURAL[2)]

20 Coffee/Table-Liquid Fresh*
21 Coffee/Table-Powdered
22 Coffee/Table-Frozen
23 Cream - 1/2 and 1/2
24 Whipping Cream-Fresh Liquid
25 Whipping Cream-Frozen Carton
26 Whipping Cream-Powdered
27 Whipping Cream-Pressurized Can
28 Sour Cream
29 Other Natural Cream/Creamer

OTHER MILK PRODUCTS-NATURAL

30 Buttermilk/Sour Milk
31 Yogurt-Plain[3)]
32 Yogurt-Flavored
38 Other Natural Milk Product
39 Unidentified Natural Milk Product

MILK MIXTURES[4)]

40 Cambric Tea
41 Natural Milks-2 or More Combined
42 Natural Milk and Non-Dairy Combined
43 Non-Dairy - 2 or More Combined
44 Filled Milk
48 Other Milk Mixtures
49 Unidentified Milk Mixture

NON-DAIRY PRODUCTS

50 Creamer-Liquid
51 Creamer-Frozen
52 Creamer-Powdered
53 Whipped Topping-Pressurized Can
54 Whipped Topping-Powdered/Dry
55 Whipped Topping-Frozen
56 Soy Milk
58 Other Non-Dairy Product
59 Unidentified Non-Dairy Product

COTTAGE CHEESE/CURD, WHEY

60 Cottage Cheese-Plain/Unidentified
61 Cottage Cheese with Fruit
62 Cottage Cheese with Vegetable
63 Cottage Cheese with Other
64 Farmer's Cheese
65 Ricotta
68 Other Curd Cheese

1L.14 FRUIT AND VEGETABLE JUICES, DRINKS, ADES, SUBSTITUTES[1)]

2nd LEVEL

FRUIT-SINGLE CITRUS

01 Grapefruit
02 Lemon (Commercial)[2)]
03 Lime (Commercial)[2)]
04 Orange
05 Tangerine
08 Other Single Citrus Fruit
09 Unidentified Citrus Fruit

FRUIT-CITRUS BLENDS

10 Lemon-Lime
11 Lemon-Orange
12 Orange-Apricot
13 Orange-Grapefruit
14 Pineapple-Grapefruit
15 Pineapple-Orange
18 Other Citrus Fruit Blend
19 Unidentified Citrus Blend

FRUIT-SINGLE NON CITRUS

20 Apple
21 Apple Cider
22 Apricot
23 Cherry
24 Cranberry
25 Fig
26 Grape
27 Peach
28 Pear
29 Pineapple
30 Prune
38 Other Single Non Citrus Fruit
39 Unidentified Non Citrus Fruit

FRUIT-NON CITRUS BLENDS

40 Apple-Cranberry
41 Apple-Other Fruit
42 Pineapple-Apricot
43 Prune-Other Fruit
44 Cherry-Apple-Pineapple
48 Other Non Citrus Fruit Blend
49 Unidentified Non Citrus Fruit Blend

SINGLE VEGETABLE FLAVOR

50 Carrot
51 Garlic
52 Onion
53 Sauerkraut
54 Tomato
58 Other Single Vegetable
59 Unidentified Vegetable

COMBINATION VEGETABLE FLAVOR

60 Tomato and Other Blends
68 Other Combination Vegetable Flavor
69 Unidentified Combination Vegetable Flavor

OTHER AND UNIDENTIFIED JUICE DRINK

70 Fruit and Vegetable Combination
71 Fruit and Other Combination
72 Vegetable and Other Combination
78 Other Juice/Drink
79 Unidentified Juice/Drink

ADES[3)]

80 Lemonade-Pink
81 Lemonade-Regular/Unidentified
82 Limeade
83 Orangeade
87 Combination - 2 or More Ades
88 Other Ades
89 Unidentified Ades

2nd LEVEL

SINGLE FRUIT FLAVORS

01 Apple
02 Apricot
03 Black Cherry
04 Cherry
05 Grape/Grapeade
06 Grapefruit
07 Lemon
08 Lime
09 Orange
10 Pear
11 Pineapple
12 Raspberry
13 Strawberry
18 Other Single Fruit Flavor
19 Unidentified Fruit Flavor

NON-FRUIT FLAVORS

20 Birch Beer
21 Chocolate
22 Cola
23 Cream Soda
24 Gingerale/Ginger Beer
25 Root Beer
26 Sarsaparilla
28 Other Non-Fruit Flavor
29 Unidentified Flavor

COMBINATION FLAVORS[1]

30 Apricot-Apple
31 Cherry-Lemon
32 Cherry-Lime
33 Cherry-Pineapple
34 Cherry-Raspberry
35 Grape-Apple
36 Grape-Cherry
37 Lemon-Grape
38 Lemon-Lime/Limeade
39 Lemon-Orange

COMBINATION FLAVORS (Continued)

40 Lime-Grapefruit
41 Orange-Apricot
42 Orange-Banana
43 Orange-Grapefruit
44 Orange-Pineapple
45 Pineapple-Apricot
46 Pineapple-Grapefruit
47 Pineapple-Lemon/Lemonade
48 Pineapple-Lime
49 Pineapple-Pear
50 Pineapple-Pink Grapefruit
51 Pineapple-Raspberry
52 Pineapple-Strawberry
53 Raspberry-Lemon/Lemonade
54 Strawberry-Lemon/Lemonade
58 Other Combination Flavors
59 Unidentified Combination Flavors

PUNCH[2]

60 Fruit Flavor/Fiesta/Tropical
61 Hawaiian
62 Mambo
63 Melon
64 Pineapple-Lemon
65 Raspberry-Lemon
66 Strawberry-Lemon
68 Other Combination/Punch
69 Unidentified Punch

MIXERS

70 Cocktail Mix-Non Alcoholic Dry/Powder
71 Cocktail Mix-Non Alcoholic Liquid[3]
72 Collins Mix/Mixer
73 Quinine Water/Tonic
74 Soda-Plain/Carbonated Water
75 Bitter/Sour Mixers
78 Other Mixers
79 Unidentified Mixers

2nd LEVEL

WHISKEY TYPE-BASE[1)]

01 Plain
02 With Mix[2)]
03 Manhattan
04 Sour
05 Old Fashioned[3)]
08 Other Whiskey Cocktail
09 Unidentified Whiskey Cocktail

GIN-BASE

10 Plain
11 With Mix[2)]
12 Martini/Gibson[5)]
13 Gimlet[6)]
14 Tom Collins[4)]
15 Gin and Tonic
18 Other Gin Cocktail
19 Unidentified Gin Cocktail

SCOTCH-BASE

20 Plain
21 With Mix[2)]
22 Old Fashioned
28 Other Scotch Cocktail
29 Unidentified Scotch Cocktail

RUM-BASE

30 Plain
31 With Mix[2)]
32 Daiquiri
38 Other Rum Cocktail
39 Unidentified Rum Cocktail

VODKA-BASE

40 Plain
41 With Mix[2)]
42 Martini
43 Gimlet
44 Collins
48 Other Vodka Cocktail
49 Unidentified Vodka Cocktail

BRANDY, CORDIALS, LIQUEUR, ETC.

50 Brandy-Plain
51 Brandy-Flavored
52 Brandy-Cocktail With Mix[2)]
53 Creme de Cocoa
54 Creme de Menthe
55 Benedictine
56 Drambuie
58 Other Liqueur/Cordial
59 Unidentified Liqueur/Cordial

BEER AND MALT BEVERAGES

60 Beer
61 Ale
68 Other Malt Beverage
69 Unidentified Malt Beverage

WINES

70 Bordeaux
71 Burgundy
72 Champagne
73 Chianti
74 Dubonnet
75 Muscatel
76 Port
77 Rhine
78 Rose'
79 Sauterne
80 Sherry
81 Tokay
82 Vermouth (Dry)
83 Vermouth (Sweet)
87 Other Red Wine
88 Other White Wine
89 Unidentified Wine

OTHER AND COMBINATIONS

90 Bitters (Angostura)
91 Coolers-Mixture of Alcohol/Liquors
92 Punch-Alcoholic
96 Other Liquor/Alcohol
97 Other Cocktail Flavoring
98 Other Alcoholic Cocktail[2)]
99 Unidentified Alcohol/Cocktail/Beverage

2nd LEVEL

PLAIN FLAVORED MILK-CHOCOLATE[1)]

01 Cocoa-Regular
02 Dairy Chocolate Milk
08 Other Plain Chocolate Milk
09 Unidentified Chocolate Milk

PLAIN FLAVORED MILK-OTHER THAN CHOCOLATE[1)]

10 Banana
11 Cherry
12 Pineapple
13 Raspberry
14 Strawberry
15 Vanilla
17 Other Fruit/Berry Flavor
18 Other Flavor
19 Unidentified Flavored Milk

MILK DRINKS - OTHER[1)]

20 Egg Nog
21 Malted Milk
22 Milk Shakes
28 Other Milk Drink

COFFEE SUBSTITUTES

30 Postum-Hot
31 Postum-Cold
32 Postum-Ingredient Use
33 Chicory-Hot
34 Chicory-Cold
35 Chicory-Ingredient Use
37 Other Coffee Substitute-Hot
38 Other Coffee Substitute-Cold
39 Other Coffee Substitute-Ingredient Use

TEA SUBSTITUTES

40 Sassafras Tea-Hot
41 Sassafras Tea-Cold
42 Sassafras Tea-Ingredient Use
43 Mint Tea-Hot
44 Mint Tea-Cold
45 Mint Tea-Ingredient Use
47 Other Tea Substitute-Hot
48 Other Tea Substitute-Cold
49 Other Tea Substitute-Ingredient Use

1L.18 BEVERAGES--DIETARY/WEIGHT LOSS, MEAL REPLACEMENTS, SUPPLEMENTS[1)]

2nd LEVEL

DIETARY/WEIGHT CONTROL PRODUCT

01 Canned Liquid
02 Powdered
03 Refrigerated
08 Other
09 Unidentified

MEAL REPLACEMENT PRODUCT-INSTANT BREAKFAST

10 Canned Liquid
11 Powdered
18 Other
19 Unidentified

DIETARY SUPPLEMENTS

20 Canned Liquid
28 Other
29 Unidentified

1L.18 BEVERAGES--DIETARY/WEIGHT LOSS, MEAL REPLACEMENTS, SUPPLEMENTS[1)]

EXHIBIT 33B

2nd LEVEL

BEEF-PLAIN/CUTS

01 Bacon (Beef Only)
02 Chipped/Dried
03 Corned
04 Ground Beef/Hamburger
05 Liver-Calf
06 Liver-Steer/Unidentified
07 Ribs/Short Ribs
08 Roast-Plain/Unidentified
09 Roast-Pot
10 Roast-Rib
11 Slices-Beef Only[3)]
12 Steak-Flank
13 Steak-Plain/Unidentified
14 Steak-Rib/Ribeye
15 Steak-Round
16 Steak-Sirloin
17 Steak-T-Bone
18 Stew Beef* - Cubes/Unidentified

PREPARED BEEF DISHES

20 Meat Balls
21 Meat Loaf
22 Patties-Hamburger
23 Steak-Pepper
24 Steak-Salisbury
25 Steak-Swiss
28 Other Beef
29 Unidentified Beef

PORK-PLAIN/CUTS

30 Bacon-Regular/Unidentified
31 Bacon-Canadian
32 Butt
33 Chops
34 Cutlets
35 Ground Pork[1)]
36 Hocks/Feet-Other Parts
37 Liver
38 Ribs/Spare Ribs
39 Roast-Plain/Unidentified
40 Salt Pork/Side Pork
41 Slices/Cubes/Strips-Pork Only
42 Steak/Tenderloin
48 Other Pork
49 Unidentified Pork

HAM

50 Baked/Roasted
51 Boiled
52 Ground Ham
53 Hocks
54 Loaf
55 Slices
56 Steak
58 Other Ham
59 Unidentified Ham

EXHIBIT 33B

2nd LEVEL

LAMB[1)]

01 Chops
02 Cutlets/Steaks
03 Ground Lamb
04 Loaf
05 Roast
06 Stew Meat
08 Other Lamb
09 Unidentified Lamb

VEAL

10 Chops
11 Cutlets/Steaks
12 Ground Veal
13 Loaf
14 Roast
15 Stew Meat
18 Other Veal
19 Unidentified Veal

GAME MEAT

20 Buffalo
21 Elk/Moose
22 Rabbit
23 Squirrel
24 Venison/Deer
28 Other Game Meat
29 Unidentified Game Meat

VARIETY MEATS/ORGANS

30 Brains
31 Heart
32 Kidney
33 Sweetbreads
34 Tongue
35 Tripe
38 Other Variety Meats/Organs
39 Unidentified Variety Meats/Organs

COMBINATION MEATS[2)]

40 Meat Loaf - 2 or More Meats
41 Patties - 2 or More Meats
42 Stew - 2 or More Meats
48 Other Combination Meats
49 Unidentified Combination Meats

OTHER AND UNIDENTIFIED MEAT

50 Chops/Steaks-Unidentified
51 Ground-Unidentified
52 Roast-Unidentified
53 Slices-Unidentified
54 Stew/Cubes-Unidentified
58 Other Meat (N. E. C.)
59 Unidentified Meat

2nd LEVEL

SAUSAGE/COLD CUTS

01 Bologna
02 Ground Sausage/Patties
03 Summer Sausage
04 Italian
05 Links-Smoked
06 Links-Unidentified
07 Liver
08 Polish
09 Pork Sausage
10 Pressed Meat[4,5)]
11 Salami
12 Thuringer
13 Vienna
14 Wieners/Franks
18 Other Single Cold Cut/Sausage
19 Unidentified Sausage/Cold Cut[3,4)]

PROCESSED LUNCHEON MEAT

20 Canned Luncheon Meat[1)]
28 Other Processed Luncheon Meat
29 Unidentified Processed Luncheon Meat

2nd LEVEL

CHICKEN[1)]

01 Baked/Roasted
02 Barbecued
03 Braised
04 Broiled
05 Fried-Pan/Unidentified Fried
06 French Fried/Deep Fat Fried
07 Fried-Oven
08 Pre Cooked-Cold/Unheated
09 Pre Cooked-Heated
10 Stewed/Steamed/Boiled
11 Uncooked/Raw[2)]
18 Other Chicken
19 Unidentified Chicken

TURKEY[1)]

20 Baked/Roasted
21 Stewed/Steamed/Boiled
22 Pre Cooked-Cold/Unheated
23 Pre Cooked-Heated
24 Uncooked/Raw[3)]
28 Other Turkey
29 Unidentified Turkey

OTHER POULTRY[1)]

30 Capon
31 Cornish Hen
32 Duck
33 Goose
38 Other Domestic Poultry
39 Unidentified Poultry

GAME BIRDS[1)]

40 Duck (Wild/Game Only)
41 Goose (Wild/Game Only)
42 Grouse
43 Guinea Hen
44 Partridge
45 Pheasant
46 Quail
48 Other Game Bird
49 Unidentified Game Bird

POULTRY ORGANS

50 Chicken Livers
51 Other Chicken Organs
52 Other Poultry Livers
53 Other Poultry Organs

EXHIBIT 33B

2nd LEVEL

FISH

01 Anchovy
02 Bass
03 Blue
04 Carp
05 Cat
06 Chubs
07 Cod
08 Flounder
09 Haddock
10 Halibut
11 Herring
12 Mackerel
13 Perch
14 Pike/Walleye
15 Salmon/Lox
16 Sardines
17 Shad
18 Smelt
19 Snapper
20 Sole
21 Sun
22 Swordfish
23 Trout
24 Tuna-Light
25 Tuna-White/Albacore/Unidentified
26 White
27 Whiting
28 Other Fish
29 Unidentified Fish

SHELLFISH

30 Clams
31 Crabs
32 Lobster
33 Oysters
34 Scallops
35 Shrimp-Cocktails
36 Shrimp-Regular/Unidentified
38 Other Shellfish
39 Unidentified Shellfish

OTHER SEAFOOD

40 Frog Legs
41 Turtle
48 Other Seafood
49 Unidentified Seafood

FISH/SEAFOOD SPECIALTIES

50 Balls
51 Bits/Bites
52 Cakes/Patties
53 Gefilte Fish
54 Loaf
55 Sticks
58 Other Fish/Seafood Specialties
59 Unidentified Specialties

2nd LEVEL

COOKED EGGS

01 Baked/Shirred
02 Boiled Hard[1)]
03 Boiled-Soft/Coddled/Unidentified Boiled[1)]
04 Fried
05 Poached
06 Scrambled[2)]
08 Other Cooked Egg
09 Unidentified Cooked Egg

UNCOOKED EGG

10 Egg-White Only
11 Egg-Yolks Only
12 Egg-Whole*

OMELETS[2)]

20 Cheese
21 Denver/Western
22 Jelly/Jam[3)]
23 Plain
28 Other Omelet
29 Unidentified Omelet

EGG DISHES[2)]

30 Benedict
31 Creamed/Curried
32 Deviled/Stuffed
33 Florentine
34 Souffle-Plain/Unidentified
35 Souffle-Other
38 Other Egg Dish
39 Unidentified Egg Dish

2nd LEVEL

MEAT

01 Beef-Plain/Unidentified Beef Soup
02 Beef-Noodle/Other Pasta
03 Ground Beef-Noodle
04 Beef-Stock[1)]
05 Lamb/Scotch Broth
07 Other-Meat-Stock
08 Other-Meat-Soup
09 Unidentified Meat Soup

FISH/SEAFOOD

10 Clam
11 Fish/Seafood Stock[1)]
12 Oyster
13 Shrimp
14 Lobster
15 Turtle/Snapper
18 Other Fish/Seafood Soup
19 Unidentified Fish/Seafood Soup

POULTRY

20 Chicken-Plain/Unidentified Chicken Soup
21 Chicken-Dumpling
22 Chicken-Cream of
23 Chicken-Gumbo
24 Chicken-Noodle/Pasta
25 Chicken-Rice
26 Chicken-Stock[1)]
27 Turkey[1)]
28 Unidentified Poultry Soup

VEGETABLE[2)]

30 Asparagus
31 Beet (Borscht)
32 Bean/Bean and Bacon
33 Bean-With Hot Dog
34 Celery
35 Corn
36 Gumbo/Creole-Vegetable Only[2)]
37 Minestrone
38 Mushroom
39 Onion
40 Green Pea
41 Split Pea With Ham
42 Other Pea Soup/Unidentified
43 Potato
44 Tomato
45 Tomato Rice
46 Vegetable/Vegetarian Vegetable
47 Lentil
48 Other Vegetable Soup[2)]

COMBINATION MEAT, FISH, POULTRY & VEGETABLE

50 Vegetable with Beef[3)]
51 Vegetable with Ground Beef
52 Vegetable with Chicken
53 Vegetable with Turkey
54 Vegetable with Fish/Seafood
58 Other Combination Vegetable/Meat/Poultry
59 Unidentified Combination Vegetable/Meat/Poultry

OTHER SOUPS

60 Cheese
61 "Chili" Soup[5)]
62 Pepper Pot
63 Soup Base
64 Vichyssoise
65 Combination-2 or More Commercial
66 Combination-2 or More Homemade
67 Combination-Commercial and Homemade
68 Other Soup
69 Unidentified Soup/Soup Bone[6)]

2nd LEVEL

CREAM CHEESE

01 Foil Wrap-Plain/Unidentified
02 Foil-Wrap-Flavored
03 Whipped-Plain/Unidentified
04 Whipped-Flavored
05 Jar/Other Cream/Neufchatel/Plain/Unidentified
06 Jar/Other Cream/Neufchatel/Flavored
09 Unidentified Cream Cheese[1)]

NATURAL CHEESE - AMERICAN

10 American/Unidentified American
11 American/Mild/Mellow/Medium
12 American-Sharp/Extra Sharp/Aged

NATURAL CHEESE - ITALIAN

13 Italian-Parmesan/Romano[2)]
14 Italian-Provolone
15 Italian-Scamorze/Mozzarella/Pizza
16 Italian-Other and Unidentified

NATURAL CHEESE - SWISS

17 Swiss-Domestic/Unidentified Swiss
18 Swiss-Domestic Aged
19 Swiss-Imported

GRATED/SHREDDED CHEESE[3)]

20 Parmesan/Romano/Italian Hard/Blends
21 American
28 Other Grated/Shredded Cheese
29 Unidentified Grated/Shredded Cheese

OTHER FOREIGN - MILD

30 Brick
31 Caraway/Kuminost[4)]
32 Edam/Gouda
33 Gruyere/Samsoe/Primost
34 Monterey/Jack
35 Muenster
38 Other Mild Foreign

OTHER FOREIGN - SHARP

40 Beer Kase/Lager Kase/Aged Brick
41 Blue/Roquefort/Gorgonzola/Stilton
42 Camembert/Brie
43 Limburger
44 Liederkranz
48 Other Sharp Foreign
49 Unidentified Foreign

PROCESS CHEESE - SLICES

50 American/Sharp/Cheese Food
51 Pimento
52 Swiss
58 Other Process Cheese Slices
59 Unidentified Process Cheese Slices

PROCESS CHEESE - LOAF

60 American/Process Loaf/Old English
61 Cheese Food and Spreads[5)]
62 Imitation Cheese Spreads[6)]
68 Other Process Cheese Loaf
69 Unidentified Process Cheese Loaf

SNACK CHEESE/CHEESE SPREAD[7)]

70 Aerosol Can[8)]
71 Club Cheese
72 Jar Cheese
73 Links
78 Other Snack/Spread Cheese
79 Unidentified Snack/Spread Cheese

OTHER/MISCELLANEOUS CHEESE

90 Cheese Mixtures
91 Cheese Sauce
92 Combination Platters/Assorted Cheese
98 Other Cheese
99 Unidentified Cheese

2nd LEVEL

BAKED BEANS--COMMERCIAL[1)]

01 Barbecue-Plain/Unidentified
02 Barbecue-With Pork
03 Molasses-Plain/Unidentified
04 Molasses-With Pork
05 Tomato-Plain/Unidentified
06 Tomato-With Pork
07 Other Syrup/Sauce-Plain/Unidentified
08 Other/Unidentified Syrup/Sauce--With Pork
09 Baked Beans-With Franks
10 Baked Beans-With Hamburger/Beef
11 Baked Beans-With Other Meat
18 Other Commercial Baked Beans
19 Unidentified Commercial Baked Beans

BAKED BEANS--HOMEMADE

20 Homemade-Completely
21 Homemade-With Commercial Mix[2)]
29 Unidentified Homemade Baked Beans

CHILI[1)]

30 Plain-No Beans[3)]
31 Plain-With Beans
32 Beef (Con Carne) - No Beans[3)]
33 Beef (Con Carne) - With Beans
34 Turkey
38 Other Chili

SLOPPY JOE'S[1)]

40 Beef
41 Pork
42 Other Meat
43 Turkey
44 Chicken
45 Other Poultry
48 Other Sloppy Joe's
49 Unidentified "Sloppy Joe's"

OTHER SPECIALTY DISHES

50 Fondue-All
51 Rarebit-Rabbit/All
58 Other Specialty Dish (N.E.C.)
59 Unidentified (Completely) Dish

1L.30 PLAIN PASTA PRODUCTS AND RICE[1,2,3)]

2nd LEVEL

MACARONI-PLAIN

01 Regular/Elbow/Unidentified
02 Salad Size
03 Shell
04 Bite Size/Miniature
08 Other Plain Macaroni

MACARONI WITH SAUCE

10 Brown/Gravy
11 Cheese
12 Cream/White
13 Tomato/Red
17 Combination - 2 or More Sauces
18 Other Macaroni/Sauce
19 Unidentified Macaroni/Sauce

NOODLES-PLAIN

20 Regular-Egg/Unidentified
21 Bite Size/Miniature
22 Other Egg
28 Other Plain Noodles

NOODLES WITH SAUCE

30 Brown/Gravy
31 Cheese
32 Cream/White
33 Tomato/Red
37 Combination - 2 or More Sauces
38 Other Noodles/Sauce
39 Unidentified Noodles/Sauce

RICE-PLAIN

40 Regular White/Unidentified White
41 Precooked White-Quick/Instant
42 Precooked White-Regular
43 Brown Rice
44 Herbed/Curry[4)]
45 Seasoned-Other Flavor[4)]
46 Wild Rice
48 Other Plain Rice
49 Unidentified Plain Rice

RICE-WITH SAUCE

50 Brown/Gravy
51 Cheese
52 Cream/White
53 Curry Sauce (No Meat)
54 Tomato/Red/Creole/Spanish
58 Other Rice/Sauce
59 Unidentified Rice/Sauce

SPAGHETTI-PLAIN

60 Plain/Regular Unidentified
61 Bite Size/Miniature
68 Other Plain Spaghetti

SPAGHETTI WITH SAUCE

70 Brown/Gravy
71 Cheese
72 Cream/White
73 Tomato/Red
77 Combination - 2 or More Sauces
78 Other Spaghetti/Sauce
79 Unidentified Spaghetti/Sauce

OTHER PASTA PRODUCT-PLAIN[3)]

80 Green Noodles
81 Rigatoni
82 Vermicelli
87 Combinations Rice and/or Pasta
88 Other Plain Pasta Product
89 Unidentified "Pasta" Product

OTHER PASTA PRODUCT--WITH SAUCE

90 Brown/Gravy
91 Cheese
92 Cream/White
93 Tomato/Red
96 Combination Rice and/or Pasta
97 Combination - 2 or More Sauces
98 Other Pasta Product/Sauce
99 Unidentified Pasta Product/Sauce

1L.31 HOT DISHES (Do not contain any Pasta or Rice Product as Direct Ingredient)
CREAMED, EN CRUST, HASHED, STEWED, STUFFED[6)]

2nd LEVEL

HOT DISHES--CREAMED/SAUCED[1)]

01 Beef-Chipped/Dried
02 Beef-Chopped/Ground
03 Beef-Roast
04 Beef-Other/Unidentified
05 Chicken
06 Ham
07 Lamb
08 Lobster
09 Pork
10 Salmon
11 Tuna
12 Turkey
13 Veal
24 Combinations Meat and/or Fish and/or Poultry
25 Other Creamed Fish/Seafood
26 Other Creamed Meat
27 Other Creamed Poultry
28 Other Creamed Hot Dish
29 Unidentified Creamed Hot Dish

HOT DISHES--EN CRUST/WITH CRUST[2)]

30 Beef-Roast/Plain
31 Beef-Ground/Chopped
32 Chicken
33 Lobster
34 Pork
35 Salmon
36 Tuna
37 Turkey
44 Combination Meat and/or Fish and/or Poultry
45 Other Fish/Seafood with Crust
46 Other Meat with Crust
47 Other Poultry with Crust
48 Other Hot Dish with Crust
49 Unidentified Hot Dish with Crust

HOT DISH--HASHED/MINCED[3)]

50 Beef-Roast/Plain
51 Beef-Chopped
52 Beef-Corned
53 Beef-Dried/Chipped
54 Chicken
55 Crab

HOT DISH--HASHED/MINCED[3)] (Continued)

56 Ham
57 Pork
58 Tuna
59 Turkey
60 Salmon
61 Veal
64 Combination Meat and/or Fish and/or Poultry
65 Other Hashed Fish/Seafood
66 Other Hashed Meat
67 Other Hashed Poultry
68 Other Hashed/Minced Hot Dish
69 Unidentified Hashed/Minced Hot Dish

HOT DISH--STEWED/BOILED[4)]

70 Beef
71 Chicken
72 Game Meat
73 Ham
74 Lamb
75 Lobster
76 Pork
77 Processed Meat
78 Sausage/Wieners
79 Spare Ribs
80 Turkey
81 Veal
84 Combination Meat and/or Fish and/or Poultry
85 Other Stewed Fish/Seafood
86 Other Stewed Meat
87 Other Stewed Poultry
88 Other Stewed/Boiled Hot Dish
89 Unidentified Stewed/Boiled Hot Dish

HOT DISH--STUFFED VEGETABLE[5)]

90 Cabbage
91 Green Peppers
92 Mushrooms
93 Onions
94 Squash
98 Other Stuffed Vegetable
99 Unidentified Stuffed Vegetable

1L.31 HOT DISHES (Do not contain any Pasta or Rice Product as Direct Ingredient)
CREAMED, EN CRUST, HASHED, STEWED, STUFFED[6)]

1L.32 HOT DISHES (Containing Macaroni, Noodles, Spaghetti, Rice, Other Pasta Products[1,2])

2nd LEVEL

MACARONI DISH WITH:

01 Beef-Ground
02 Beef-Roast
03 Beef-Other/Unidentified
04 Chicken
05 Franks
06 Ham
07 Meat Balls
08 Mushrooms
09 Pork
10 Tuna
11 Veal
13 Combination Meat/Fish/Poultry, Etc.
14 Other Fish/Seafood
15 Other Meat
16 Other Poultry
17 Other Vegetable
18 Other Macaroni Dish
19 Unidentified Macaroni Dish

NOODLE DISH WITH:

20 Beef-Ground
21 Beef-Roast
22 Beef-Other/Unidentified
23 Chicken
24 Franks
25 Ham
26 Meat Balls
27 Mushrooms
28 Pork
29 Tuna
30 Veal
33 Combination Meat/Fish/Poultry, Etc.
34 Other Fish/Seafood
35 Other Meat
36 Other Poultry
37 Other Vegetable
38 Other Noodle Dish
39 Unidentified Noodle Dish

RICE DISH WITH:

40 Beef-Ground
41 Beef-Roast
42 Beef-Other/Unidentified
43 Chicken
44 Franks
45 Ham
46 Meat Balls
47 Mushrooms
48 Pork
49 Tuna

RICE DISH WITH: (Continued)

50 Veal
53 Combination Meat/Fish/Poultry, Etc.
54 Other Fish/Seafood
55 Other Meat
56 Other Poultry
57 Other Vegetable
58 Other Rice Dish
59 Unidentified Rice Dish

SPAGHETTI DISH WITH:

60 Beef-Ground
61 Beef-Roast
62 Beef-Other/Unidentified
63 Chicken
64 Franks
65 Ham
66 Meat Balls
67 Mushrooms
68 Pork
69 Tuna
70 Veal
73 Combination Meat/Fish/Poultry, Etc.
74 Other Fish/Seafood
75 Other Meat/Unidentified Meat
76 Other Poultry
77 Other Vegetable
78 Other Spaghetti Dish
79 Unidentified Spaghetti Dish

OTHER PASTA WITH[3]:

80 Beef-Ground
81 Beef-Roast
82 Beef-Other/Unidentified
83 Chicken
84 Franks
85 Ham
86 Meat Balls
87 Mushrooms
88 Pork
89 Tuna
90 Veal
93 Combination Meat/Fish/Poultry, Etc.
94 Other Fish/Seafood
95 Other Meat
96 Other Poultry
97 Other Vegetable
98 Other Pasta Dish[4]
99 Unidentified "Pasta" Dish

1L.32 HOT DISHES (Containing Macaroni, Noodles, Spaghetti, Rice, Other Pasta Products[1,2])

EXHIBIT 33B

2nd LEVEL

ITALIAN DISHES

01 Cacciatore
02 Lasagna
03 Parmigiana
04 Ravioli-Cheese
05 Ravioli-Other
06 Scallopini
07 Tetrazzini
08 Other Italian Dish
09 Unidentified Italian Dish

MEXICAN DISHES

10 Enchiladas-Cheese
11 Enchiladas-Meat/Poultry
12 Enchiladas-Other
13 Refried Beans
14 Tacos
15 Tamales
16 Tortillas
18 Other Mexican Dish
19 Unidentified Mexican Dish

ORIENTAL DISHES

20 Beef-Almond
21 Cantonese Dish
22 Chinese Noodles
23 Chop Suey
24 Chow Mein
25 Egg Foo Young
26 Egg Roll
27 Fried Rice
28 Sub Gum
29 Sukiyaki

ORIENTAL DISHES (Continued)

30 Sweet and Sour Pork
31 Sweet and Sour-Other
32 Teriyaki
38 Other Oriental Dishes
39 Unidentified Oriental Dishes

PIZZA

40 Cheese-Plain/Cheese Only
41 Cheese and Sausage/Sausage
48 Other Pizza
49 Unidentified Pizza

OTHER FOREIGN DISHES

50 German-Sauerbraten
51 German-Wiener Schnitzel
52 German-Other (N.E.C.)
53 Hungarian (N.E.C.)
54 Kreplach
55 Shish Kebob
58 Other Foreign Dish
59 Unidentified Foreign Dish

2nd LEVEL

MEAT

01 Beef-Roast/Unidentified Beef
02 Beef-Pot Roast
03 Chopped Beef/Salisbury Steak
04 Corned Beef/Unidentified Corned Beef
05 Corn Beef Hash
06 Cube Steak
07 Ham
08 Meat Loaf
09 Pork
10 Swiss Steak
11 Veal
18 Other Meat Course Meal
19 Unidentified Meat Course Meal

FISH/SEAFOOD

20 Cod
21 Fish and Chips
22 Fish Sticks
23 Haddock
24 Perch
25 Scallops
26 Shrimp
27 Tuna
28 Other Fish/Seafood
29 Unidentified Fish/Seafood

POULTRY

30 Fried Chicken
31 Roast Chicken
32 Other/Unidentified Chicken
33 Duck
34 Rock Cornish Hen
35 Turkey
38 Other Poultry
39 Unidentified Poultry

PASTA AND RICE

40 Macaroni and Cheese
41 Macaroni-Other
42 Noodle
43 Spaghetti
44 Rice
48 Other Pasta/Rice
49 Unidentified Pasta/Rice

FOREIGN

50 Oriental-Chop Suey/Chow Mein
51 Oriental Other
52 German Sauerbraten/Other German
53 Italian- Lasagna
54 Italian-Ravioli
55 Italian-Other
56 Mexican-Enchilladas
57 Mexican-Other
58 Other Foreign Course Meal
59 Unidentified Foreign Course Meal

OTHER AND UNIDENTIFIED

60 Chili Con Carne
61 Combination Plates/Unidentified Plate
62 Egg
68 Other Multiple Course Meals
69 Unidentified Multiple Course Meals

EXHIBIT 33B

2nd LEVEL

PANCAKES - PLAIN

01 Sweet Milk-Regular/Plain
02 Buttermilk/Sour Milk
03 Buckwheat-Sweet Milk
04 Buckwheat-Other
05 Buckwheat-Unidentified
08 Other Plain Pancakes
09 Unidentified Pancakes

PANCAKES - FLAVORED AND SPECIAL

10 Apple
11 Blueberry
12 Corn/Cornmeal
13 Potato
14 Rice/Wild Rice
15 Swedish
18 Other Flavored Pancakes
19 Unidentified Flavored Pancakes

WAFFLES

20 Sweet Milk-Regular/Plain
21 Buttermilk/Sour Milk
22 Bran
23 Buckwheat
24 Fruit
25 Nut
26 Combination Flavors
28 Other Waffles
29 Unidentified Waffles

FRIED CAKES - FILLED/ROLLED

30 Blintz-Cheese
31 Blintz-Fruit
32 Blintz-Potato
33 Blintz-Other
34 Blintz-Unidentified
35 Crepes Suzette
36 Fried Pies
38 Other Filled/Rolled Fried Cakes
39 Unidentified Filled/Rolled Fried Cakes

OTHER FRIED CEREAL/GRAIN CAKES

40 French Toast[1)]
41 Fritters-Plain/Unidentified
42 Fritters-Corn
43 Fritters-Fruit
44 Fritters-Other
45 Fried Cornbread
46 Fried Mush/Scrapple
47 Hush Puppies
48 Other Fried Cereal/Grain Cakes
49 Unidentified Fried Cereal/Grain Cakes

2nd LEVEL

SAUCE--GRAVY TYPE[1)]

01 Brown
02 Cream
03 Giblet
04 Mushroom
05 Onion
06 Poultry
08 Other Gravy Type Sauce
09 Unidentified Gravy Type Sauce

CONDIMENT SEASONING SAUCES-PLAIN

10 Gravy Flavoring/Concentrate
11 Horseradish-Regular/Unidentified
12 Horseradish-Beet
13 Horseradish-Sauce/Dressing[2)]
14 Meat Sauce/Non Gravy Type
15 Mustard-Regular/Creamy/Unidentified
16 Mustard-Brown
17 Mustard-Dressing[2)]
18 Mustard-Horseradish
19 Mustard-Hot
20 Mustard-Sauce
21 Mustard-Other
22 Soy Sauce
23 Steak Sauce
24 Tabasco/Hot Pepper[8)]
25 Worcestershire
28 Other Condiment Sauce
29 Unidentified Condiment Sauce

BARBECUE SAUCES

30 Regular/Plain
31 Garlic Flavored
32 Hot/Spicy Flavored
33 Smoked/Unidentified Smoked
34 Smoked Garlic
35 Smoked Hot/Spicy
38 Other Barbecue Sauce
39 Unidentified Barbecue Sauce

SWEET/SOUR SAUCES

40 "Sweet and Sour"/Unidentified
41 Savory Sauce
42 Soy Sauce Base
43 Mustard Base
44 Mint Base
45 Vinaigrette (Vinegar)
46 Wine Base/Bordelaise
48 Other Sweet/Sour Sauce

MARINADES/BASTINGS[3)]

50 Lemon Base
51 Vinegar Base
58 Other Marinades/Bastings
59 Unidentified Marinades/Bastings

2nd LEVEL

SAUCE--TOMATO CONDIMENT/PLAIN TOMATO

01 Catsup-Plain/Unspecified
02 Catsup-Hot
03 Catsup-Other Flavored
04 Chili Sauce
05 Tomato Paste
06 Tomato Puree

07 Tomato Sauce[1)]
08 Other Plain Tomato/Other Tomato
09 Unidentified Plain Tomato

SAUCES--MADE WITH TOMATO PRODUCT

10 Canned Tomatoes/Stewed
11 Catsup
12 Fresh Tomato Product
13 Juice
14 Paste
15 Puree
16 Sauce
17 Soup (Tomato Only)
27 Combination - 2 or More Tomato Products
28 Other Tomato Product
29 Unidentified Tomato Product

SAUCES--CREAMED TYPE WITH MILK/ MILK PRODUCT

30 Ala King
31 Bearnaise
32 Cheese
33 Egg
34 Hollandaise/Mousseline
35 Newburg
36 Onion
37 Sour Cream
38 Tartar
39 White/Plain-Thickened/Unidentified
40 White/Plain-Unthickened
47 Cream(ed) Soup Base--Other Than Above
48 Other Cream Sauce
49 Unidentified "Cream" Sauce

SAUCE--NON CREAMY

50 Butter-Brown
51 Butter-Drawn
52 Butter-Lemon
53 Butter-Other/Unidentified
54 Celery
55 Curry
56 Lemon
57 Mushroom
58 Onion (Non-Creamy/Unidentified)
59 Soup Base--Other Than Above/Non Creamy

SAUCES--NAMED SPECIALTY[6)]

60 Cocktail/Seafood
61 Creole
62 Goulash
63 Herb/Mixed Herbs
64 Italian
65 Marinara
66 Meat Loaf
67 Mexican
68 Pizza
69 Savory Meat
70 Spaghetti
71 Spanish/Espagnole
72 Swiss Steak
73 Vegetable Blends
76 Other Casserole/Hot Dish Type Sauce
77 Other Foreign Dish/Type Sauce
78 Other Specialty Sauce
79 Unidentified Specialty Sauce

2nd LEVEL

ANGEL FOOD CAKE

01 Cherry
02 Chocolate
03 Lemon
04 Orange
05 Pineapple
06 Plain/Vanilla/White
07 Combination Fruit
08 Other Angel Food Cake
09 Unidentified Angel Food Cake

BUTTER CAKES

10 Chocolate
11 Yellow
18 Other Butter Cake
19 Unidentified Butter Cake

CHIFFON CAKE

20 Chocolate
21 Lemon
22 Orange
23 Plain/Vanilla
28 Other Chiffon Cake
29 Unidentified Chiffon Cake

CUPCAKES

30 Chocolate
31 Plain/Vanilla
32 Yellow
38 Other Cupcakes
39 Unidentified Cupcakes

LAYER/LOAF CAKES

40 Almond
41 Apple/Apple Sauce
42 Apricot
43 Banana
44 Blackberry
45 Black Walnut/Walnut
46 Blueberry
47 Butter Pecan
48 Caramel/Butterscotch
49 Cherry

LAYER/LOAF CAKES (Continued)

50 Chocolate-Dark Chocolate
51 Chocolate-Devils Food
52 Chocolate-German
53 Chocolate-Milk Chocolate
54 Chocolate-Other
55 Chocolate-Unidentified
56 Honey
57 Lemon
58 Maple
59 Marble-Chocolate and White
60 Marble-Other
61 Mixed Fruit-Combinations
62 Mocha/Coffee
63 Orange
64 Peach
65 Peppermint
66 Pineapple
67 Plum
68 Raspberry
69 Rum/Brandy
70 Spice[1)]
71 Strawberry
72 White/Vanilla
73 Yellow
75 Other Candy Flavor
76 Other Fruit Flavor
77 Other Nut Flavor
78 Other Layer/Loaf Cake
79 Unidentified Layer/Loaf Cake

POUND CAKE

80 Chocolate
81 Marble
82 Yellow/Plain
88 Other Pound Cake
89 Unidentified Pound Cake

SPONGE CAKE

90 All Flavors
91 Shortcake Shells[2)]

2nd LEVEL

PUDDING CAKE

01 Caramel
02 Chocolate
03 Lemon
04 Orange
05 Vanilla/Plain
08 Other Pudding Cake
09 Unidentified Pudding Cake

UPSIDE DOWN CAKE

10 Cherry
11 Peach
12 Pineapple
18 Other Upside Down Cake
19 Unidentified Upside Down Cake

SPECIALTY CAKES[1)]

20 Boston Cream Pie
21 Cheese Cake
22 Fruit Cake
23 Rolled Cake-Chocolate[2)]
24 Rolled Cake-Jelly
25 Shortcake-Biscuit Type Base[3)]
26 Shortcake-Other Cake Base[3)]
27 Torte
28 Whipped Cream Cake
38 Other Cake[1)]
39 Unidentified Cake

COMMERCIAL INDIVIDUAL CAKE PRODUCTS

40 Cupcakes-Cream Filled
41 Snow Balls/Coconut Covered
42 Cake Pieces/Slices-Cream Filled
48 Other Individual Commercial Cake
49 Unidentified Individual Commercial Cake

2nd LEVEL

PLAIN

01 Almond
02 Anise
03 Apple
04 Banana
05 Butter
06 Butterscotch
07 Brown Sugar
08 Caramel
09 Cashew
10 Chocolate
11 Chocolate Almond
12 Chocolate Chip
13 Chocolate Coconut
14 Chocolate Lemon
15 Chocolate Mint
16 Chocolate Oatmeal
17 Chocolate Other Nut
18 Chocolate Pecan
19 Cinnamon
20 Coconut/Macaroon
21 Date Nut
22 Devils Food
23 Fruit/Iced Fruit
24 Fruit and Nut (N.E.C.)
25 Fudge
26 Ginger
27 Ginger Bread
28 Ice Box
29 Lemon
30 Maple Nut
31 Mint
32 Mincemeat
33 Molasses
34 Orange
35 Oatmeal/Iced Oatmeal
36 Oatmeal Raisin/Iced Oatmeal Raisin
37 Peanut Butter/Peanut
38 Pecan
39 Raisin
40 Raisin and Fruit/Nut
41 Shortbread/Iced Shortbread
42 Sour Cream
43 Spice
44 Sugar/Iced Sugar
45 Vanilla[6)]
47 Other Plain Fruit Cookie
48 Other Plain Nut Cookie
49 Other & Unidentified "Plain" Cookie

FRUIT/NUT FILLED-BARS CAKES/SQUARES

50 Apricot
51 Coconut
52 Date
53 Fig
54 Fudge/Sugared Fudge
55 Hermits
56 Peanut Butter-Plain[5)]
57 Peanut-Chocolate Covered
58 Raisin
59 Brownies-Chocolate/Fudge[1)]
60 Brownies-Butterscotch
61 Brownies-Nut/Fruit and Chocolate
62 Brownies-Spice
63 Brownies-Other
66 Other Nut Bar/Square
67 Other Fruit Bar/Square
69 Unidentified Bar/Square

SANDWICH CREMES[4)]

70 Butterscotch/Caramel
71 Coconut/Macaroon
72 Fruit Flavored/Punch
73 Fudge/Chocolate
74 Oatmeal
75 Peanut/Peanut Butter
76 Sugar/Sugar Wafers
77 Vanilla/Vanilla Cremes
78 Other Sandwich Cookies
79 Unidentified Sandwich Cookies

OTHER COOKIES

80 Assortments (All)
81 Bon Bon
82 Candy Bar Type-Chocolate Covered
83 Cereal Cookies
84 Children's Cookies/Animal Crackers[2)]
85 Dietetic Cookies (All)
86 Graham Cracker Cookies-Chocolate Covered
87 Graham Cracker Cookies-Other
88 Marshmallow-Chocolate Covered
89 Marshmallow-Other
90 Marshmallow-Sandwich
91 Meringues/Kisses
92 Scandinavian Cookies
93 German Cookies
94 Oriental Cookies
95 Other Foreign Cookies
98 Other Cookies (N.E.C.)
99 Unidentified Cookies

2nd LEVEL

PLAIN - FRUIT AND NUT PIES

01 Apple
02 Apricot
03 Blackberry
04 Blueberry
05 Boysenberry
06 Cherry
07 Mincemeat
08 Peach
09 Pecan

10 Pineapple
11 Prune/Plum
12 Raisin
13 Raspberry
14 Rhubarb
15 Strawberry
20 Combination - 2 or More Fruits
21 Combination - 2 or More Berries
22 Combination - Fruit and Berry
23 Combination - Other and Unidentified
24 Other Berry Pie
25 Other Fruit Pie
26 Other Nut Pie
27 Unidentified Berry Pie
28 Unidentified Fruit Pie
29 Unidentified Nut Pie

CHIFFON PIES

30 Chocolate
31 Lemon
32 Pumpkin
33 Combination - 2 or More Fruits
38 Other Chiffon Pie
39 Unidentified Chiffon Pie

CREAM PIES[1)]

40 Banana
41 Butterscotch
42 Chocolate
43 Coconut
44 Lemon
45 Pineapple
46 Pumpkin
47 Strawberry
48 Squash
49 Sweet Potato
50 Vanilla/Plain Cream Pie
51 Combination - 2 or More Fruits
52 Combination-Other
58 Other Cream Pie
59 Unidentified Cream Pie

CUSTARD PIES

60 Coconut
61 Other Fruit
62 Vanilla/Plain Custard Pie
68 Other Custard Pie
69 Unidentified Custard Pie

OTHER PIES

70 Cheese
71 Ice Box
72 Parfait Pie[2)] - Berry
73 Parfait Pie-Other Fruit
74 Parfait Pie-Unidentified
75 Shoo Fly Pie
76 Ice Cream Pie
78 Other Pie
79 Unidentified Pie

TARTS

80 Apple
81 Blueberry
82 Cherry
83 Peach
86 Combination Fruit Tart
87 Other Fruit Tart
88 Other Tart
89 Unidentified Tart

EXHIBIT 33B

2nd LEVEL

CHOCOLATE BASE

01 Chocolate-Dark
02 Chocolate-Fudge
03 Chocolate-German
04 Chocolate-Milk
05 Chocolate-Nut
06 Chocolate-Swiss
08 Other Chocolate Frosting
09 Unidentified Chocolate Frosting

FRUIT FLAVOR BASE

10 Apple
11 Apple Sauce
12 Banana
13 Blackberry
14 Blueberry
15 Cherry
16 Coconut-Plain/Unidentified
17 Coconut-Almond
18 Coconut-Caramel
19 Coconut-Pecan
20 Fruit Mixtures
21 Lemon
22 Orange
23 Peach
24 Pineapple
25 Raspberry
26 Strawberry
28 Other Fruit Frosting
29 Unidentified Fruit Frosting

CANDY/NUT BASE

30 Almond
31 Butter Brickle
32 Butter Pecan
33 Butterscotch
34 Caramel
35 Peppermint
36 Toffee
38 Other Candy/Nut Frosting
39 Unidentified Candy/Nut Frosting

OTHER FROSTING FLAVORS

40 Brown Sugar
41 Burnt Sugar
42 Honey
43 Lady/Lord Baltimore
44 Maple
45 Mocha/Coffee
46 Spice
47 Vanilla/~~Plain~~ White
48 Other Frosting
49 Unidentified Frosting
50 Meringue (Topping)

EXHIBIT 33B

2nd LEVEL

CRISPS

01 Apple
02 Blueberry
03 Cherry
04 Combination Fruit
08 Other Crisp
09 Unidentified Crisp

DESSERT DUMPLINGS[1)]

10 Apple
11 Peach
12 Plum
13 Combination Fruit
18 Other Dessert Dumpling
19 Unidentified Dessert Dumpling

PUFF/LAYERED PASTRY

20 Cream Horns
21 Cream Puffs
22 Eclairs
23 French Pastry
24 Napoleons
28 Other Puff/Layered Pastry
29 Unidentified Puff/Layered Pastry

TURNOVER/RISSOLES

30 Apple/Apple Sauce
31 Blueberry
32 Cherry
33 Strawberry
34 Combination Fruit
38 Other Turnover/Rissole
39 Unidentified Turnover/Rissole

OTHER PASTRY/BAKED DESSERTS

40 Brown Betty
41 Meringue Shell
42 Strudel
48 Other Pastry/Baked Desserts
49 Unidentified Pastry/Baked Desserts

1L.46 GELATIN[1)]

2nd LEVEL

FRUIT FLAVORED

01 Apricot
02 Blackberry
03 Black Cherry
04 Black Raspberry
05 Cherry-Red/Unidentified Cherry
06 Coffee
07 Grape
08 Lemon
09 Lemon-Lime
10 Lime
11 Mixed Fruit[2)]
12 Orange
13 Orange-Banana
14 Orange-Pineapple
15 Peach
16 Pear
17 Pineapple
18 Pineapple-Grapefruit
19 Pink Grapefruit
20 Pistachio
21 Red Raspberry-Unidentified Raspberry
22 Strawberry
23 Strawberry-Banana
24 Strawberry-Punch
25 Tropical Fruit
26 Tutti Frutti
27 Cranberry
28 Wine Flavored
37 Combination Fruit Flavors
38 Other Fruit Flavor
39 Unidentified Fruit Flavor Gelatin

VEGETABLE FLAVORED

40 Celery
41 Italian
42 Mixed Vegetable
43 Tomato
48 Other Vegetable Flavor
49 Unidentified Vegetable Gelatin

OTHER AND UNIDENTIFIED

50 Unflavored Gelatin
51 Combination Fruit and Vegetable
59 Unidentified Gelatin

EXHIBIT 33B

2nd LEVEL

PUDDING-PLAIN/FRUIT

01 Apple
02 Banana/Banana Cream
03 Butterscotch
04 Caramel
05 Cherry
06 Chocolate-Regular/Unidentified
07 Chocolate-Dark'n Sweet
08 Chocolate-Dutch
09 Chocolate-Nut
10 Chocolate-Other
11 Coconut/Coconut Creme/Unidentified
12 Coconut-Toasted
13 Danish
14 Date/Fig
15 Lemon
16 Lime
17 Orange
18 Pineapple/Pineapple Cream
19 Plum
20 Raspberry
21 Rhubarb
22 Strawberry/Strawberry Cream
23 Vanilla/Plain
26 Other Berry Pudding
27 Other Fruit Pudding
28 Other Pudding
29 Unidentified Pudding

PUDDING-TAPIOCA[1)]

30 Banana
31 Chocolate
32 Lemon
33 Orange
34 Orange-Coconut
35 Vanilla/Plain
38 Other Tapioca Pudding
39 Unidentified Tapioca Pudding

CUSTARD

40 Egg/Plain
41 Caramel
42 Chocolate
43 Coconut
44 Fig
45 Rice
46 Vanilla
48 Other Custard
49 Unidentified Custard

CHIFFON

50 Chocolate
51 Lemon
52 Orange
53 Strawberry
58 Other Chiffon
59 Unidentified Chiffon

PARFAIT

60 Chocolate
61 Strawberry
62 Vanilla
68 Other Parfait
69 Unidentified Parfait

OTHER PUDDING TYPE DESSERTS[2)]

70 Bavarian Cream
71 Bread Pudding
72 Heavenly Hash
73 Indian Pudding
74 Prune Whip
75 Rice Pudding
76 Sponge/Snow Pudding
78 Other Pudding Dessert
79 Unidentified Pudding Type Dessert

EXHIBIT 33B

2nd LEVEL

ICE CREAM[1)]

01 Banana
02 Butter Pecan
03 Butter Brickle
04 Butterscotch
05 Cherry
06 Chocolate
07 Chocolate Chip
08 Chocolate/Fudge Royale
09 Maple Nut/Maple
10 Neapolitan
11 Peach
12 Strawberry
13 Vanilla/French Vanilla
14 Other Candy Flavor
15 Other Combination Flavors
16 Other Fruit Flavors
17 Other Nut Flavors
18 Other Flavor Ice Cream
19 Unidentified Ice Cream

ICE MILK[2)]

20 Banana
21 Chocolate
22 Fudge Royale
23 Lemon
24 Neapolitan
25 Orange/Orange-Pineapple
26 Strawberry
27 Strawberry Royale
28 Vanilla*
29 Other Flavor Ice Milk

SHERBET/ICES

30 Lemon
31 Lime
32 Orange
33 Pineapple
34 Raspberry
35 Vanilla
38 Other Flavor Sherbet/Ice
39 Unidentified Sherbet/Ice

ICE CREAM SUBSTITUTES[3)]

40 Chocolate
41 Fruit Flavor
42 Vanilla*
48 Other Flavor Substitutes

COMBINATIONS - 2 OR MORE

50 Combinations-Ice Cream
51 Combinations-Ice Milk
52 Combinations-Sherbets/Ices
53 Combination-Ice Cream and Other
58 Other Combinations
59 Unidentified Combinations

SODAS/FLOATS

60 Ice Cream Soda/Float
61 Ice Milk Soda/Float
62 Sherbet, Ice Soda/Float
68 Other Soda/Float
69 Unidentified Soda/Float

2nd LEVEL

STICK TYPE

01 Creamsicle
02 Fudgesicle
03 Ice Cream Stick*
04 Popsicle
08 Other Stick Type

BAR TYPE[1)]

10 Chocolate Covered-Plain
11 Chocolate Covered-Nuts
12 Covered-Other
18 Other Bar Type
19 Unidentified Ice Cream Bar

CUP TYPES[2)]

20 Chocolate Flavors
21 Fruit Flavors
22 Combination Flavors
28 Other Flavor
29 Unidentified Flavor

CONES[3,5)]

30 Ice Cream-Chocolate
31 Ice Cream-Vanilla
32 Ice Cream-Fruit Flavor
33 Ice Cream-Other Flavor
34 Ice Milk-Plain
35 Ice Milk-Flavored
38 Other Cone
39 Unidentified Ice Cream Cone

SANDWICHES[3)]

40 Chocolate
41 Vanilla
42 Other Flavor
49 Unidentified Ice Cream Sandwich

OTHER ICE CREAM SPECIALTIES[4)]

50 Ice Cream Cake Roll
51 Mousse
52 Parfait
53 Tortoni
58 Other Ice Cream/Frozen Specialties
59 Unidentified Ice Cream Dish

2nd LEVEL

SALAD-GELATIN BASE[1)]

01 Apricot
02 Aspic•
03 Blackberry
04 Cherry-Red/Unidentified
05 Cherry-Black
06 Coffee
07 Currant
08 Lemon
09 Lemon-Lime
10 Lime
11 Loganberry
12 Orange
13 Peach
14 Pineapple
15 Pistachio
16 Raspberry
17 Strawberry
18 Tutti Frutti
19 Wine Flavored
20 Unflavored
26 Combination-Gelatin Salad and Cottage Cheese Salad (Eaten Together[5])
27 Other Single Flavor
28 Other Combination Flavors[2)]
29 Unidentified Gelatin Flavor

SALAD-SINGLE FRUIT

30 Apple
31 Avocado
32 Banana
33 Grapefruit
34 Melon
35 Orange
36 Peach
37 Pear
38 Pineapple
39 Raspberry
40 Strawberry
48 Other Single Fruit Salad
49 Unidentified Fruit Salad

SALAD-COMBINATION FRUIT

50 Ambrosia
51 Frozen Fruit Salad[3)]
52 Orange-Grapefruit
53 Waldorf
54 Combination-Fruit and Cottage Cheese Salads (Eaten Together[5])
58 Other Fruit Salad
59 Unidentified Combination Fruit Salad

1L.51 SALADS--MEAT, FISH, POULTRY, EGG, OTHER SALADS[1)]

2nd LEVEL

MEAT

01 Beef
02 Ham
03 Lamb
04 Pork
05 Veal
06 Processed Meat
08 Other Meat Salad
09 Unidentified Meat Salad

FISH/SEAFOOD

10 Crab
11 Herring
12 Lobster
13 Salmon
14 Sardine
15 Shrimp
16 Tuna
17 Combination Seafood
18 Other Fish/Seafood Salad
19 Unidentified Fish/Seafood Salad

POULTRY

20 Chicken
21 Duck
22 Goose
23 Turkey
28 Other Poultry Salad
29 Unidentified Poultry Salad

OTHER SALADS

30 Egg Salad
31 Jellied Soup Salad

32 Relish Tray[3)]
38 Other Salad

1L.51 SALADS--MEAT, FISH, POULTRY, EGG, OTHER SALADS[1)]

2nd LEVEL

VEGETABLE[1)]

01 Artichoke
02 Asparagus
03 Bean-Green
04 Bean-Kidney
05 Bean-Mixed
06 Bean-Unidentified/Other Bean
07 Beet
08 Broccoli
09 Caesar
10 Carrot/Carrot Slaw
11 Cauliflower
12 Celery
13 Cucumber
14 Cucumber and Tomato
15 Lettuce-Plain/Unidentified
16 Lettuce-Wilted
17 Okra
18 Pea
19 Slaw-Cabbage/Cole/Unidentified
20 Slaw-Cream Style
21 Spinach
22 Tomato-Plain
23 Tomato-Stuffed
24 Tomato and Lettuce
27 Other Combination Vegetable Salads
28 Other Single Vegetable Salad
29 Unidentified Vegetable Salad

POTATO SALAD

30 Cream Style
31 German/Sweet Sour
38 Other Potato Salad
39 Unidentified Potato Salad

PASTA SALAD

40 Macaroni
41 Noodle
42 Spaghetti
48 Other Pasta Salad
49 Unidentified Pasta Salad

COMBINATION SALADS[2)]

50 Combination - 2 or More Vegetable Salads Eaten Together[3)]
51 Combination - Fruit and Vegetable Salad Eaten Together[3)]
52 Combination - Vegetable and Cottage Cheese Salads Eaten Together[1)]
58 Other Combination Salad
59 Unidentified "Salad"

EXHIBIT 33B

2nd LEVEL

VISCOUS-REGULAR

01 American
02 Boiled
03 Mayonnaise[1)]
04 Salad Dressing/Miracle Whip
05 Thousand Island
08 Other Viscous Dressing
09 Unidentified Viscous Dressing

FRENCH TYPE--REGULAR[1)]

10 French-Orange Homogenized
11 French-Red Separating with Tomato
12 French-Red Separating Non Tomato
13 French-With Cheese
18 Other French Dressing
19 Unidentified French Dressing

OTHER LIQUID DRESSING-REGULAR[1,2)]

20 Caesar
21 Cole Slaw
22 Fruit
23 Garlic
24 Green Goddess
25 Herb
26 Italian
27 Oil and Vinegar
28 Onion
29 Russian
30 Sour Cream
31 Thousand Island
32 Vinegar
38 Other Regular Liquid Dressing
39 Unidentified Liquid Dressing

REGULAR LIQUID-CHEESE DRESSING[1)]

40 Cheese-Bleu
41 Cheese-Roquefort
42 Cheese-Cheddar
43 Cheese and Italian
48 Other Cheese Dressing
49 Unidentified Cheese Dressing

VISCOUS-LOW CALORIE DRESSING

50 Mayonnaise
51 Salad Dressing
58 Other Low Calorie Viscous
59 Unidentified Low Calorie Viscous

LIQUID AND OTHER LOW CALORIE DRESSING

60 Cheese
61 French
62 Fruit
63 Italian
64 Russian
65 Thousand Island
68 Other Low Calorie Dressing
69 Unidentified Low Calorie Dressing

DRY MIX DRESSINGS

70 Caesar
71 Cheese-Bleu
72 Cheese-Garlic
73 Cheese-Parmesan
74 Cheese-Other/Unidentified
75 Classic
76 French
77 Garlic
78 Green Goddess
79 Herb/Exotic Herb
80 Italian
81 Old Fashioned
82 Onion
83 Russian
84 Thousand Island
88 Other Dry Mix Dressing
89 Unidentified Dry Mix Dressing

OTHER AND UNIDENTIFIED SALAD DRESSING

90 Salad Dressing-Other
91 Salad Dressing-Unidentified

2nd LEVEL

STICKS/SOLID

01 Premium Price-Regular-Unwhipped
02 Medium Price-Regular-Unwhipped
03 Low Price-Regular-Unwhipped
04 Diet/Low Calorie-Unwhipped
05 Unsalted
08 Other Sticks/Solid-Unwhipped
09 Unidentified Sticks/Solid

STICKS/WHIPPED

10 Regular Whipped
11 Diet/Low Calorie-Whipped
12 Soft Whipped
18 Other Whipped
19 Unidentified Whipped

TUBS/CUPS

20 Soft Regular-Unwhipped
21 Soft Regular-Whipped
22 Diet/Low Calorie-Unwhipped
23 Diet Low Calorie-Whipped
26 Other Tub Margarine
27 Soft Regular-Unidentified as to Whipped
28 Diet/Low Calorie-Unidentified
29 Unidentified Tubs

ALL OTHER MARGARINES

30 Liquid-Regular/Unidentified Liquid
31 Liquid-Low Calorie/Dietetic
32 Pats
38 Other Margarine

UNIDENTIFIED MARGARINE (PACK TYPE)

40 Corn Oil
41 Safflower Oil
42 Other Oil
49 Unidentified Margarine

EXHIBIT 33B

2nd LEVEL

BUTTER

01 Salted*
02 Unsalted
03 Whipped

LIQUID OILS

10 Corn
11 Cotton
12 Olive
13 Peanut
14 Safflower
15 Soybean
18 Other Liquid Oil
19 Unidentified Liquid Oil

SHORTENING

20 Lard
21 Solid Vegetable
28 Other Shortening
29 Unidentified Shortening

OTHER FATS/OILS

30 Chicken Fat
31 Greaseless Frying Agents
32 Drippings-Bacon Grease
33 Drippings-Other Pan Drippings
34 Suet
35 Seasoned/Popcorn Oils
38 Other Fats/Grease
39 Unidentified Fat/Grease

FLAVORED BUTTERS[1]- SPICE/HERB

40 Garlic
41 Onion
48 Other Spice/Herb/Butter
49 Unidentified Flavored Butter

FLAVORED BUTTERS[1] - SWEET

50 Cinnamon
51 Honey
52 Nut
53 Olive/Olive Nut
58 Other Sweet Flavor Bufters

2nd LEVEL

CITRUS FRUIT

01 Grapefruit
02 Kumquat
03 Lemon[1)]
04 Lime[2)]
05 Orange
06 Mandarin Orange
07 Tangerine
08 Other Citrus Fruit
09 Unidentified Citrus Fruit

PINEAPPLE

10 Pineapple

DECIDUOUS FRUIT

20 Apple
21 Apple Sauce-Plain
22 Apple Sauce-Flavored
23 Apricot
24 Banana
25 Cherries-Maraschino
26 Cherries-Other and Unidentified
27 Grapes
28 Nectarines
29 Peaches-Cling
30 Peaches-Freestone
31 Peaches-Unidentified
32 Pear
33 Plum
38 Other Deciduous Fruit
39 Unidentified Deciduous Fruit

MELONS

40 Cantaloupe/Muskmelon/Persian
41 Honeydew/Casaba
42 Watermelon
48 Other Melon
49 Unidentified Melon

BERRIES

50 Blackberries
51 Blueberries
52 Boysenberries
53 Cranberries/Unidentified Cranberries[3)]
54 Cranberry Sauce[3)]
55 Currant
56 Raspberries
57 Strawberries
58 Other Berries
59 Unidentified Berries

OTHER FRUITS

60 Avocado
61 Coconut[4)]
62 Dates
63 Figs
64 Mango
65 Prunes
66 Raisins
67 Rhubarb
68 Other Fruit
69 Unidentified Fruit

FRUIT COMBINATIONS[5)]

70 Mixed Fruit Cocktail
71 Mixed Fruit Balls
72 Mixed Sections-Orange & Grapefruit
73 Mixed Sections-Other
74 Mincemeat
78 Other Fruit Combination
79 Unidentified Fruit Combination

FRUIT PRODUCTS

80 Citron
81 Lemon Peel/Rind
82 Orange Peel/Rind
83 Minted Fruits
84 Cinnamon Fruits
85 Brandied Fruits
87 Other Fruit Peel/Rind
88 Other Fruit Product

PICKLED/SPICED FRUIT

90 Peaches
91 Pears
92 Apple
98 Other
99 Unidentified

2nd LEVEL

BEANS

01 Beans-Brown/Chili
02 Beans-Butter
03 Beans-Green Cut
04 Beans-Green French/Sliced
05 Beans-Green Italian
06 Beans-Green Whole
07 Beans-Green/Unidentified
08 Beans-Baby Lima
09 Beans-Fordhook Lima
10 Beans-Unidentified Lima
11 Beans-Kidney
12 Beans-Navy
13 Beans-Pinto
14 Beans-Wax
18 Beans-Other
19 Beans-Unidentified

OTHER LEGUMES

20 Peas-Blackeyed
21 Peas-Crowder
22 Peas-Dried (Yellow/Green)
23 Peas-Green/Unidentified
24 Peas-Tiny
25 Okra
26 Lentils
28 Other Legume
29 Unidentified Legume

CORN AND HOMINY

30 Corn-Yellow Kernel/Unidentified Kernel
31 Corn-White Kernel
32 Corn-Cream Style
33 Corn-Mexican Style
34 Corn-On-Cob
35 Hominy
38 Other Corn
39 Unidentified Corn

GOURDS

40 Cucumber
41 Egg Plant
42 Pumpkin
43 Squash-Summer
44 Squash-Winter
45 Squash-Zucchini
46 Squash-Unidentified
48 Other Gourd
49 Unidentified Gourd

HEAD VEGETABLES

50 Artichoke
51 Broccoli
52 Brussel Sprouts
53 Cabbage-Green/Unidentified
54 Cabbage-Red
55 Cauliflower
56 Kale
57 Lettuce (All)
58 Romaine
59 Other Head Vegetables

LEAFY GREENS

60 Beet Greens
61 Chard
62 Collard Greens
63 Dandelion Greens
64 Endive
65 Escarole
66 Mustard Greens
67 Parsley[1)]
68 Polk/Salat/Mountain Greens
69 Spinach
70 Turnip Greens
71 Watercress
78 Other Green/Leafy Vegetable
79 Unidentified Leafy Vegetable

STEMS

80 Asparagus
81 Bamboo Shoots
82 Celery
83 Chives
88 Other Stem Vegetables
89 Unidentified Stem Vegetables

TUBEROUS (EXCLUDING POTATOES)

90 Beets
91 Carrot
92 Onion-Regular/Unidentified[1)]
93 Onion-Green Stem
94 Onion-Rings
95 Parsnip
96 Radish
97 Rutabaga
98 Turnip/Kohlrabi
99 Other Tuberous

1L.64 VEGETABLES--MISCELLANEOUS VEGETABLES, SPICED VEGETABLES AND VEGETABLE COMBINATIONS

2nd LEVELS

OTHER VEGETABLES

01 Bean Sprouts
02 Mushrooms
03 Peppers-Green/Unidentified
04 Peppers-Red
05 Pimentoes
06 Sauerkraut
07 Tomatoes-Plain/Unidentified
08 Tomatoes-Stewed/With Seasoning
09 Tomatoes-Commercial Wedges
10 Water Chestnuts
11 Garlic-Fresh/Unidentified[8)]
18 Other Vegetables
19 Unidentified Vegetables

MIXED VEGETABLES--NAMED[1,7)]

20 Corn-Beans (Succotash)
21 Corn-Peas-Tomatoes
22 Peas-Carrots
23 Peas-Celery-Peppers
24 Beans-Lima Beans-Other Vegetable
25 Cabbage-Carrots
26 "Mixed Vegetables" (Commercial Only)
28 Other Mixed Vegetables

VEGETABLE COMBINATION UNIDENTIFIED[2)]

30 "Salad Greens"
31 Soup Vegetables/Greens/Stew Vegetables
32 Mixed Vegetables-Unidentified
33 Casserole Vegetables/Base
38 Other Unidentified Combination

SPICED/PICKLED VEGETABLES[3)]

40 Beans
41 Beets
42 Cauliflower
43 Onions
44 Tomatoes
48 Other Spiced/Pickled Vegetables
49 Unidentified Spiced/Pickled Vegetables

MEAT SUBSTITUTE PRODUCTS

50 Bacon
51 Beef
52 Other Meat
53 Chicken
54 Other Poultry
55 Fish
56 Seafood
58 Other Meat Substitute Product
59 Unidentified Meat Substitute Product

MEAT SUBSTITUTE DISHES

60 Vegetable Steaks/Patties
61 Vegetable Scallops
67 Other Meat Substitute Dish
68 Unidentified Meat Substitute Dish

2nd LEVEL

PLAIN WHITE COOKED

01 Baked•
02 Boiled/Steamed
03 Browned (Oven)
04 Fried-French
05 Fried-Pan[6)]
06 Heated
07 Mashed
08 Other Plain White Cooked
09 Unidentified Method

WHITE POTATO DISH[1)]

10 Au Gratin/Cheese
11 Creamed
12 Patties
13 Puffs
14 Scalloped
15 Tots/Rounds[5)]
16 Potato and Other Vegetable Combinations
18 Other White Potato Dish
19 Unidentified White Potato Dish

SWEET POTATO-PLAIN COOKED

20 Baked
21 Boiled/Steamed
22 Fried-French
23 Fried-Pan
24 Heated
25 Mashed
28 Other Plain Cooked Sweet Potato
29 Unidentified Method

SWEET POTATO DISH[1)]

30 Baked Casserole
31 Candied/Glazed
32 Patties
33 Puffs
38 Other Sweet Potato Dish
39 Unidentified Sweet Potato Dish

POTATO--INGREDIENT USE ONLY OF UNCOOKED

40 White/Unidentified Potato Raw
41 White-Dehydrated
42 Sweet-Raw

UNIDENTIFIED POTATO

50 Unidentified Type of Potato

2nd LEVEL

PRE SWEETENED

01	Alpha Bits	(P)
02	Apple Jacks	(K)
03	Cap'n Crunch	(Q)
04	Cocoa Krispies	(K)
05	Cocoa Puffs	(GM)
06	Corn Crackos	(P)
07	Crispy Critters	(P)
08	Diet Frosted Rice Puffs	(Q)
09	Diet Frosted Wheat Puffs	(Q)
10	Froot Loops	(K)
11	Frosted Corn Bursts	(GM)
12	Frosty O's	(GM)
13	Grambits	(N)
14	Honeycomb	(P)
15	Kreamy Krunch	(K)
16	Lucky Charms	(GM)
17	Mr. Waffles	(R)
18	Puppets	(N)
19	Quake	(Q)
20	Quisp	(Q)
21	Rice Honeys	(N)
22	Sugar Corn Puffs	(Q)
23	Sugar Crisp	(P)
24	Sugar Frosted Flakes	(K)
25	Sugar-Jets	(GM)
26	Sugar Pops	(K)
27	Sugar Smacks	(K)
28	Sugar Smiles	(GM)
29	Sugar Sparkled Flakes	(P)
30	Sugar Sparkled Rice Krinkles	(P)
31	Sugar Stars	(K)
32	Trix	(GM)
33	Twinkles	(GM)
34	Wheat Honeys	(N)
35	Puffa-Puffa Rice	(K)
36	Good News	(GM)
38	Other Pre Sweetened RTE Cereal	
39	Unidentified Pre Sweetened RTE Cereal	

SHREDDED BISCUITS

40	Corn Chex	(R)
41	Rice Chex	(R)
42	Shredded Wheat-Regular[2]	
43	Shredded Wheat-Bite Size[3]	
44	Wheat Chex	(R)
45	Wheat Stax	(GM)
48	Other Shredded Biscuit	
49	Unidentified Shredded Biscuit	

EXPANDED/EXPLODED

50	Buttercups	(GM)
51	Cherrios	(GM)
52	Kix	(GM)
53	OK's	(K)
54	Puffed Corn Flakes	(P)
55	Puffed Rice	
56	Puffed Wheat	
57	Rice Krispies	(K)
58	Wackies	(GM)
59	Other Expanded/Exploded RTE Cereal	

UNSWEETENED FLAKES

60	Bran Flakes/40% Bran[1]	
61	Bran with Prune Flakes	
62	Cornflakes/Toasties	
63	Cornflakes with Fruit[6]	
64	Grape-Nuts Flakes	(P)
65	Oat Flakes/Fortified Oat Flakes	
66	Pep	(K)
67	Raisin Bran	
68	Rice Flakes	
69	Team Flakes	(N)
70	Total	(GM)
71	Corn Total	(GM)
72	Wheat Flakes	
73	Wheaties	(GM)
74	Wheaties with Raisin Flakes	(GM)
78	Other Unsweetened Flakes	
79	Unidentified RTE Flakes	

OTHER READY TO EAT CEREALS & COMBINATIONS

80	Bran Buds	(K)
81	Concentrate	(K)
82	Grape-Nuts	(P)
83	Hi Pro	(GM)
84	Life	(Q)
85	Product 19	(K)
86	Shreds-All Bran	
87	Shreds-Krumbles	(K)
88	Shreds-Other	
89	Shreds-Unidentified	
90	Special K	(K)
91	Triple Snack	(K)
92	Variety Pak/Tray[4]	
93	Wheat Germ	
94	Wheat Germ/Concentrates/ and Other Cereal Combination[5]	
97	Other Combination-2 or More RTE Cereals[5]	
98	Other Ready to Eat Cereal	
99	Unidentified Ready to Eat Cereal	

EXHIBIT 33B

2nd LEVEL

OATS/OATMEAL--HOT CEREAL

01 Instant/No Cook-Plain[1)]
02 Instant/No Cook-Flavored
03 Quick Cooking-Plain[1)]
04 Quick Cooking-Flavored
05 Regular/Old Fashioned-Plain[1)]
06 Regular/Old Fashioned-Flavored
08 Unidentified Oats/Oatmeal-Plain*
09 Unidentified Oats/Oatmeal-Flavored

WHEAT/WHITE-FARINA

10 Instant
11 Quick Cooking
12 Regular[2)]

WHEAT-BROWN/DARK

20 Wheat-Whole Brown/Dark-Regular[2)]
21 Wheat-Whole Brown/Dark-Instant
28 Other Wheat Cereals
29 Unidentified

GRITS

30 Regular[2)]
31 Quick Cooking

OTHER AND UNIDENTIFIED HOT CEREALS

40 Combination-2 or More Hot Cereals[3)]
41 Combination-Hot Cereal and RTE Cereal[3)]
42 Combination-Commercial Wheat and Oats/Groats
43 Bulgar
48 Other Hot Breakfast Cereal[5)]
49 Unidentified Hot Breakfast Cereal

CORN MEAL

50 Yellow
51 White
59 Unidentified

OTHER GRAINS

60 Barley
61 Bran
68 Other Grains
69 Unidentified Grains

EXHIBIT 33B

2nd LEVEL

BREADS-REGULAR YEAST

01 White-Regular/Plain Yeast
02 Batter
03 Bran
04 Buttermilk
05 Cinnamon
06 Diet/Gluten
07 Egg Bread
08 French/Italian/Vienna
09 Graham
10 Oatmeal
11 Onion
12 Potato
13 Pumpernickel
14 Raisin
15 Rye
16 Wheat-Cracked
17 Wheat-Whole/Unidentified
18 Other Yeast Bread[6)]
19 Unidentified "Bread" Product

BUNS/ROLLS[1)]

20 Bagel
21 Butter
22 Cloverleaf
23 Crescents/Croissants
24 Crumpets
25 English Muffin
26 Hamburger
27 Hard/Kaiser
28 Onion
29 Parker House
30 Poppy Seed
31 Potato
32 Rye/Dark
33 Sesame
34 Tea/Dinner
35 Wiener
36 White/Plain
38 Other Buns/Rolls
39 Unidentified Buns/Rolls

STICKS

40 Bread Sticks
41 Cheese Sticks
42 Pizza Sticks
43 Salt Sticks
44 Sesame Sticks
48 Other Sticks
49 Unidentified Sticks

BISCUITS

50 Baking Powder/Sweet Milk
51 Buttermilk
52 Scones
53 Shortcake
54 Whole Wheat
58 Other Biscuits
59 Unidentified Biscuits

MUFFINS

60 Plain
61 Banana
62 Blueberry
63 Bran
64 Caraway
65 Cheese
66 Cornmeal-White
67 Cornmeal-Yellow/Unidentified
68 Date
69 Oat/Oatmeal
70 Orange
71 Popovers
72 Raisin Bran
73 Whole Wheat
78 Other Muffins
79 Unidentified Muffins

UNIDENTIFIED BREAD PRODUCT

80 No Bread/Bread Product Indicated[5)]

2nd LEVEL

QUICK BREADS

01 Banana
02 Banana-Nut
03 Boston Brown
04 Cinnamon-Raisin
05 Cornbread-White
06 Cornbread-Yellow/Unidentified[1)]
07 Corn Pone
08 Corn Sticks
09 Cranberry
10 Date/Date Roll
11 Date-Nut
12 Gingerbread
13 Oatmeal
14 Orange
15 Nut Bread
18 Other Quick Bread
19 Unidentified Quick Bread

COFFEE CAKE

20 Plain/"Coffee Cake"
21 Apple
23 Butter Crumb
24 Butter Crunch/Butterscotch
25 Cardamon
26 Cinnamon-Plain/Unidentified
27 Cinnamon-Fruit
28 Cinnamon-Nut
29 Cinnamon-Other
30 Date
31 Nut
32 Stollen
33 Streusel/Crumb
34 Swedish Tea Ring
35 Topped/Filled-Berry (Other)
36 Topped/Filled-Fruit (Other)
37 "Danish" Coffee Cake
38 Other Coffee Cake
39 Unidentified Coffee Cake

SPECIALTY TOASTER PRODUCTS-FRUIT FLAVOR

40 Apple
41 Apple Combination With Other
42 Blueberry
43 Cherry
44 Grape
45 Raspberry
46 Strawberry
48 Other Fruit Flavor Toast Product
49 Unidentified Flavor Toast Product

SPECIALTY TOASTER PRODUCTS-OTHER FLAVOR

50 Brown Sugar/Cinnamon
51 Butter Crunch
52 Cheese
53 Cinnamon/Cinnamon Twists
54 Pizza/Italian
55 Ham and Cheese
56 Corn/Corn Sticks
58 Other Flavor Toast Product

SWEET ROLLS

60 Almond Nut
61 Caramel-Plain/Unidentified
62 Caramel Nut
63 Cinnamon-Iced/Frosted
64 Cinnamon-Raisin
65 Cinnamon-Other/Unidentified
66 Danish Rolls/Pastry-Other/Unidentified
67 Danish Rolls/Pastry-Orange
68 Danish Rolls/Pastry-Raspberry
69 Hot Cross Buns
70 Fruit Topped/Filled-Other
71 Berry Topped/Filled-Other
72 Cheese Topped/Filled
73 Custard Topped/Filled
74 Kolacky
76 Plain "Sweet Roll"
77 Assorted Sweet Rolls[3)]
78 Other Sweet Roll
79 Unidentified Sweet Roll

DOUGHNUTS AND OTHER

80 Doughnuts-Plain/Unidentified
81 Doughnuts-Iced/Glazed
82 Doughnuts-Chocolate
83 Doughnuts-Sugared
84 Doughnuts-Other/Spud Nuts
85 Crullers/Twists-Cinnamon
86 Crullers/Twists-Other
87 Jelly Filled/Bismarks/Long Johns
88 Other
89 Unidentified

2nd LEVEL

CRACKERS-PLAIN/SODA

01 Regular-Saltine/Soda
02 Soda-Other
03 Ritz Type
04 Oyster
05 Matzo
06 Wafers
08 Other Plain Cracker
09 Unidentified Crackers

CRACKERS--FLAVORED/COCKTAIL TYPE

10 Bacon
11 Barbecue
12 Beef
13 Cheese-Plain/Unidentified
14 Cheese-Other/Swiss and Ham
15 Chicken
16 Ham
17 Meat Ball
18 Onion/French Onion
19 Pizza/Spiced
20 Potato
21 Sesame
22 Triangle
23 Triscuit
24 Wheat
25 Assorted Crackers[1)]
26 Other Flavor Meat/Fish/Poultry/Cinnamon
27 Other Special Shaped Cracker
28 Other/Rye Cocktail Cracker
29 Unidentified Cocktail Cracker

OTHER CRISP TOAST PRODUCTS

30 Bar Bits
31 Croutons-Plain/Unidentified
32 Croutons-Flavored
33 Flat Bread
34 Graham Crackers
35 Melba Toast
36 Rye Krisp-Plain/Unidentified
37 Rye Krisp-Flavored
38 Zwieback/Rusk
48 Other Toast Product
49 Unidentified Toast Product

CRUMBS[2)]

50 Bread-Homemade
51 Bread-Commercial Plain/Unidentified
52 Bread-Commercial Seasoned
53 Bread-Unidentified
54 Cracker-Homemade
55 Cracker-Graham Cracker (All)
56 Cracker-Commercial Plain/Unidentified
57 Cracker-Commercial Seasoned
58 Cracker-Unidentified
59 Other Crumbs

STUFFINGS/DRESSINGS[3)]

60 Bread Crumb-Plain
61 Cornbread/Cornmeal
62 Fruit/Nut/Chestnut
63 Giblet
64 Mushroom
65 Rice
66 Sausage
67 Seafood/Oyster/Fish
68 Other Stuffing/Dressing
69 Unidentified Stuffing/Dressing

DUMPLINGS

70 Plain/Regular
71 Liver/Other Meat
78 Other Dumplings
79 Unidentified Dumplings

HOT CEREAL SUBSTITUTE DISHES[3,4)]

80 Cornmeal Mush
81 Milk Toast
82 Untoasted Bread with Milk
83 Graham Crackers with Milk
84 Other Cracker with Milk
86 Unidentified Bread/Bread Product with Milk
87 Unidentified Cracker with Milk
88 Other Cereal Substitute Dish
89 Unidentified Cereal Substitute Dish

2nd LEVEL

MISCELLANEOUS CHIPS/SNACKS

01 Bacon Rinds
02 Coconut Chips
03 Corn Chips (Frito Type)
04 Pretzels
05 Seeds (Pumpkin, Sunflower, etc.)
06 Tortilla Chips
07 Potato Sticks/Shoestrings
08 Other Chip/Snack (Excluding Potato)
09 Unidentified Chip/Snack (Excluding Potato)

CURLS/EXTRUDED SNACKS

10 Bows
11 Bugles
12 Buttons
13 . Daisys
14 Dippy Canoes
15 Nibits
16 Salty Surfers
17 Shapies
18 Whistles
19 Corn Skis
27 Corn Curls
28 Cheese Curls/Snacks
29 Other and Unidentified Curls/Snacks

COMBINATIONS/MIXED

30 Baked/Toasted Mixtures
31 Bridge/Party Mix
32 Cereal and Chip/Curl Mix
33 Fiddle Faddle
38 Other Mixture Snack Items
39 Unidentified Mixtures

EXHIBIT 33B

2nd LEVEL

NUTS

01 Almonds
02 Beer Nuts[1)]
03 Brazil
04 Cashews
05 Chestnuts
06 Filberts
07 Peanuts
08 Pecans
09 Pistachio
10 Walnuts-Plain/Unidentified
11 Walnuts-Black
17 Mixed/Assorted Nuts
18 Other Nuts
19 Unidentified Nuts

POTATO CHIPS[5)]

20 Plain/Unidentified
21 Barbecue Flavor
22 Cheese Flavor
23 Garlic Flavor
24 Herb Flavor
25 Onion Flavor
28 Other Potato Chips

POPCORN

30 Plain/Unidentified
31 Caramel Corn
32 Cheese Flavored
33 Popcorn Balls
34 Puffed Corn Kernels
38 Other Popcorn

APPETIZERS/CANAPES[2)]

40 Antipasto
41 Bacon Wrapped
42 Franks (Cocktail)
43 Meat Balls (Cocktail)
44 Meat Rolls
45 Filled Puffs/Shells
46 Filled Crust/Wrapped
47 Canapes-Cheese Base
48 Canapes-Fish/Seafood Base
49 Canapes-Meat Base
50 Canapes-Poultry Base
51 Canapes-Other Base
56 Other Stuffed Appetizer
57 Assorted/Combination - 2 or More[3)]
58 Other Appetizer/Canape
59 Unidentified Appetizer/Canape

1L.80 CANDY--COMMERCIAL CANDY BARS, SOLID CHOCOLATE, PANNED CHOCOLATE, BOXED CHOCOLATE, CHEWY CANDIES

2nd LEVEL

COMMERCIAL CANDY BARS-CHOCOLATE

01 Almond Joy
02 Baby Ruth
03 Butter Finger
04 Chunky
05 Clark
06 5th Avenue
07 Forever Yours
08 Heath
09 Hershey-Almond
10 Hershey-Krackle
11 Hershey-Plain/Unidentified (Including Miniatures)
12 Mars
13 Milkshake
14 Milky Way
15 Mounds
16 Mr. Goodbar
17 Nestle-Crunch
18 Nestle-Plain/Unidentified
19 O'Henry
20 Pay Day
21 Power House
22 Snicker
23 Three Musketeers
28 Other Commercial Chocolate Bar
29 Unidentified Commercial Chocolate Bar

COMMERCIAL CANDY BARS-OTHER

30 Bit-O-Honey
31 Dietetic/Low Calorie (All Bars)
32 Fruit
33 Nut/Nut Roll
34 Peanut
38 Other Commercial Candy Bar
39 Unidentified Commercial Candy Bar

SOLID CHOCOLATE

40 Chocolate Fudge
41 Eggs/Hearts/Santas, Etc.
43 Kisses
43 Milk Chocolate (Bars/Pieces)
44 Non'Pareils
45 Stars
48 Other Solid Chocolate
49 Unidentified Solid Chocolate

CHOCOLATE COVERED/PANNED CHOCOLATE

50 Balls-Malted Milk
51 Bridge Mix
52 Chocolate Covered-Caramels
53 Chocolate Covered-Cherries
54 Chocolate Covered-Cream, Eggs, Etc.
55 Chocolate Covered-Marshmallows
56 Chocolate Covered-Mints
57 Chocolate Covered-Nuts/Other
58 Chocolate Covered-Nut Cluster
59 Chocolate Covered-Peanuts
60 Chocolate Covered-Peanut Clusters (Bun)
61 Chocolate Covered-Raisins
62 Chocolate Covered-Turtles
63 Cups-Peanut Butter
64 Drops-Chocolate Only
65 Chocolate-Fruit-Nut
66 Hershettes
67 M & M's
68 Other Chocolate Covered Candy
69 Unidentified Chocolate Covered Candy

OTHER CANDY

70 Assorted-Boxed Chocolate
71 Unidentified Boxed Chocolate
78 Other Chocolate Candy
79 Unidentified Chocolate Candy

TOFFEE, TAFFY, CARAMEL, NOUGAT

80 Caramel-Plain/Unidentified
81 Caramel-Chocolate
82 Kisses-Peanut Butter
83 Milk Duds
84 Nougat
85 Taffy Apple
86 Taffy-Salt Water
87 Taffy-Turkish
88 Taffy-All Other/Unidentified
89 Toffee-Plain/Unidentified
90 Toffee-Flavored
91 Tootsie Roll
98 Other
99 Unidentified

1L.80 CANDY--COMMERCIAL CANDY BARS, SOLID CHOCOLATE, PANNED CHOCOLATE, BOXED CHOCOLATES, CHEWY CANDIES

1L.81 CANDY--NON CHOCOLATE CREAMS, MARSHMALLOWS, MINTS, HARD CANDY, GUM

2nd LEVEL

BUTTER CREAMS

01 Candy Corn
02 Bon Bons
03 Fondant
04 Halloween Candy
08 Other Butter Creams
09 Unidentified Butter Creams

FRUIT AND NUT

10 Coconut Candy
11 Candied Fruits[1)]
12 Candied Nuts[2)]
13 Peanut Brittle
14 Pralines
15 Walnut Crush
18 Other Fruit and Nut Candy
19 Unidentified Fruit and Nut Candy

GUM TYPE

20 Chuckles
21 Good & Plenty
22 Gum Drops
23 Jellies
24 Jelly Beans
25 Licorice
26 Mint Flavor
27 Orange/Fruit Slices
28 Other Gum Candy
29 Unidentified Gum Candy

HARD CANDY/SUCKERS

30 Butterscotch
31 Chocolate
32 Christmas Candy
33 Cinnamon Balls
34 Lemon Drops
35 Mint Flavor
36 Orange
37 Pineapple
38 Suckers-Filled
39 Life Savers (All)
40 Combination/Assorted-Hard Candy
46 Other Fruit Flavor Hard Candy
47 Other Sour Balls
48 Other Hard Candy
49 Unidentified Hard Candy

MARSHMALLOW CANDY[3)]

50 Bananas
51 Circus Peanuts
52 Eggs
53 Other Seasonal Marshmallow Candy
58 Other Marshmallow Candy
59 Unidentified Marshmallow Candy

MINTS-PLAIN

60 After Dinner Mints
61 Butter Mints
62 Lozenges
63 Peppermints
64 Peppermint Sticks/Candy Canes
65 Winter Green
68 Other Plain Mints
69 Unidentified Mints

MISCELLANEOUS/UNIDENTIFIED CANDIES

70 Cereal Base
71 Candy Cigarettes
72 Cotton Candy
73 Divinity
74 Fudge-All Other/Unidentified
75 Halvah
76 Peanut Butter
77 Wafers (NECO Type)
78 Other Candy
79 Unidentified Candy

CHEWING GUM

80 Candy Flavor
81 Cinnamon
82 Fruit Flavor
83 Mint
84 Peppermint
85 Sour Flavor
86 Spearmint
88 Other Flavor Gum
89 Unidentified Flavor Gum

COUGH DROPS

90 Assorted Flavors
91 Cherry
92 Fruit/Other Fruit
93 Honey
94 Lemon
95 Licorice
96 Medicinal
97 Menthol
98 Other Flavor Cough Drops
99 Unidentified Cough Drops

2nd LEVEL

MARSHMALLOWS[1)]

01 Regular-White*
02 Regular-Colored/Flavored Regular
03 Regular-Unidentified
04 Miniature-White
05 Miniature-Colored/Flavored Miniature
06 Miniature-Unidentified
08 Other Marshmallows

BAKING CANDIES-NON CHOCOLATE

10 Bits/Chips-Butterscotch
11 Bits/Chips-Caramels
12 Bits/Chips-Cherry
13 Bits/Chips-Cinnamon
14 Bits/Chips-Lemon
15 Bits/Chips-Peanut Butter
16 Bits/Chips-Raspberry
17 Bits/Chips-Spice
18 Bits/Chips-Other
19 Cinnamon Red Hots
20 Cake Decoration Pellets/Crystals
21 Colored Sugars
28 Other Non Chocolate Baking Candies
29 Unidentified Baking Chocolate

BAKING CANDIES-CHOCOLATE

30 Bits/Chips-Chocolate*
31 Bits/Chips-Chocolate Mint
32 Bits/Chips-Other Chocolate

BAKING CHOCOLATE[2)]

40 Unsweetened-Regular/Premium
41 Semi-Sweet
42 Sweet/German Sweet
43 Pre-Melted/No Melt Type (All)
48 Other Baking Chocolate
49 Unidentified Baking Chocolate

EXHIBIT 33B

2nd LEVEL

OLIVES

01 Green Olives-With Stone/Unidentified Green
02 Green Olives-Pitted
03 Green Olives-Pimento Stuffed[1)]
04 Green Olives-Other Stuffed
05 Ripe/Black Olives
08 Other Olives
09 Unidentified Olives

PICKLES-DILL[2)]

10 Genuine Dill
11 Kosher Dill
12 Polish Dill
18 Other Dill
19 Unidentified Dill Pickles

OTHER PICKLES

20 Candied/Sweet
21 Fresh Cucumber Pickles[3)]
22 Mixed/Assorted Pickles
23 Mustard Pickles
24 Sour Pickles
25 Watermelon (Rinds)
28 Other Pickles
29 Unidentified Pickles

RELISH

30 Beet
31 Chow Chow
32 Chutney
33 Corn
34 Cranberry/Cranberry-Orange
35 Hamburger
36 Hot Dog
37 India
38 Mustard
39 Pepper
40 Picalilli/Tomato Relish
41 Sweet/Pickle Relish
48 Other Relish
49 Unidentified Relish

EXHIBIT 33B

2nd LEVEL

JELLY

01 Apple
02 Apple-Combinations
03 Apricot
04 Blackberry
05 Currant
06 Grape
07 Mint
08 Plum
09 Raspberry
10 Strawberry
11 Wine
17 Combination Fruit Jelly
18 Other Jelly
19 Unidentified Jelly

JAM

20 Apple
21 Blackberry
22 Grape
23 Plum
24 Raspberry
25 Strawberry
27 Combination Fruit Jam
28 Other Jam
29 Unidentified Jam

PRESERVES

30 Apricot
31 Apricot-Pineapple
32 Blackberry
33 Blueberry
34 Cherry
35 Grape
36 Peach
37 Pineapple
38 Plum
39 Raspberry
40 Strawberry
47 Combination Fruit Preserves
48 Other Preserves
49 Unidentified Preserves

MARMALADE

50 Apricot
51 Orange
52 Peach
57 Combination Fruit Marmalade
58 Other Marmalade
59 Unidentified Marmalade

OTHER FRUIT SPREADS/BUTTER

60 Conserve-Grape
61 Conserve-Other
62 Conserve-Unidentified
63 Fruit Butter-Apple
64 Fruit Butter-Other
65 Fruit Butter-Unidentified
68 Other Fruit Spread
69 Unidentified Fruit Spread

1L.85 SWEET SAUCES, TOPPINGS, POWDERED FLAVORINGS, OTHER SYRUPS[1,2)]

2nd LEVEL

SWEET SAUCES/TOPPINGS-FRUIT FLAVOR

01 Apricot
02 Cherry
03 Coconut
04 Lemon
05 Orange
06 Pineapple
07 Raisin
08 Other Fruit Sauce/Topping
09 Unidentified Fruit Sauce/Topping

SWEET SAUCES/TOPPINGS-BERRY FLAVOR

10 Blackberry
11 Blueberry
12 Boysenberry
13 Raspberry
14 Strawberry
18 Other Berry Sauce/Topping
19 Unidentified Berry Sauce/Topping

SWEET SAUCE/TOPPING-CHOCOLATE

20 Chocolate Syrup[3)]
21 Chocolate-Caramel
22 Chocolate Fudge Sauce
28 Other Chocolate Sauce/Syrup
29 Unidentified Chocolate Sauce/Syrup

SWEET SAUCES/TOPPINGS-OTHER FLAVOR

30 Brandy
31 Butterscotch
32 Caramel
33 Custard
34 Grenadine
35 Hard Sauce
36 Rum Sauce
37 Marshmallow (Creme/Topping)
38 Nut Sauce
39 Vanilla/Plain
40 Wine Sauce
48 Other Sweet Sauce/Topping
49 Unidentified Sweet Sauce/Topping

FLAVORINGS-POWDERED[2)]

50 Banana
51 Cocoa-Regular/Unidentified Cocoa
52 Chocolate Drink Powder/Instant
53 Cherry
54 Eggnog
55 Pineapple
56 Strawberry
57 Vanilla
60 Malted Milk-Chocolate Powder
61 Malted Milk-Natural/Plain
68 Other Powdered Flavoring
69 Unidentified Powdered Flavoring

SYRUPS-CORN SYRUP

70 Light Corn Syrup
71 Dark Corn Syrup
72 Corn and Cane, Combination
78 Other Corn Syrup
79 Unidentified Corn Syrup

SYRUPS-MAPLE/MAPLE FLAVORED

80 Plain-Maple Syrup (Regular)
81 Flavored[4)]-Maple Syrup (Regular)
82 Plain-Imitation Maple
83 Flavored[4)]-Imitation Maple
88 Other Maple Syrup
89 Unidentified Maple Syrup

OTHER SYRUPS

90 Cane/Simple/Bar Syrups
91 Fruit Syrup (From Canned/Frozen Fruit)
92 Honey
93 Malt Syrup
94 Molasses
98 Other Syrup
99 Unidentified Syrups

EXHIBIT 33B

2nd LEVEL

HERBS

01 Basil
02 Bay Leaves
03 Chervil
04 Dill Weed
05 File
06 Marjoram
07 Mint/Peppermint
08 Oregano
09 Rosemary
10 Saffron
11 Sage
12 Savory
13 Tarragon
14 Thyme
18 Other Herb
19 Unidentified Herb

SEEDS

20 Anise
21 Capers
22 Caraway
23 Cardamon
24 Celery
25 Coriander
26 Cummin/Cumino
27 Dill
28 Fennel
29 Mustard
30 Poppy
31 Red Pepper
32 Sesame
38 Other Seeds
39 Unidentified Seeds

SPICES

40 All Spice
41 Anise Powder
42 Cardamon Powder
43 Cayenne
44 Chili Powder
45 Cinnamon
46 Cinnamon and Sugar Mixture
47 Cloves (Whole and Ground)
48 Curry Powder
49 Ginger
50 Mace
51 Mustard (Dry)
52 Nutmeg

SPICES (Continued)

53 Paprika
54 Turmeric
55 Vanilla Stick/Beans
58 Other Spice
59 Unidentified Spice/Seasoning

VEGETABLE SPICES/SALTS

60 Celery
61 Dill Salt
62 Garlic-Powder
63 Garlic-Salt
64 Onion Powder
65 Onion-Salt
66 Smoke (Salt and Liquid)
68 Other Vegetable Spice/Salt
69 Unidentified Vegetable Spice/Salt

MULTI-PURPOSE BLENDS

70 Bouquet Garni (All)
71 Fines Herbes/Beau Monde
72 Monosodium Glutamate (MSG/Accent)
73 Seasoning Salts (Lawry Type)
74 Tenderizer-Unseasoned
75 Tenderizer-Seasoned
76 Tenderizer-Unidentified
78 Other Multi Purpose Blends
79 Unidentified Blend Spices/Herbs

SPECIALTY BLENDS[1)]

80 Barbecue Seasoning
81 Chili/Chili Con Carne
82 Foreign Dish Flavor[2)]
83 Gravy Flavoring (Powdered Only)
84 Meat Loaf
85 Pickling Spices
86 Poultry Seasoning
87 Pumpkin Pie Spice
88 Salad Herbs
89 Sausage Seasonings
90 Seafood Seasoning
91 Sloppy Joe
92 Stew Seasoning
93 Dip Mix (Seasoned)
98 Other Specialty Blend
99 Unidentified Specialty Blend

2nd LEVEL

EXTRACTS/FLAVORINGS

01 Almond
02 Anise
03 Banana
04 Cherry
05 Lemon
06 Liquor/Wine
07 Maple
08 Mint/Peppermint
09 Orange
10 Pineapple
11 Raspberry
12 Root Beer
13 Strawberry
14 Vanilla
15 Walnut
18 Other Extract/Flavoring
19 Unidentified Extract/Flavoring

DEHYDRATED FLAKES

20 Celery
21 Onion-Flakes
22 Onion-Minced
23 Parsley
24 Pepper
25 Garlic-Minced/Flakes
28 Other Dehydrated Flakes[4)]
29 Unidentified Dehydrated Flakes

COCONUT[1)]

30 Flaked
31 Grated
32 Shredded
38 Other Dehydrated Coconut
39 Unidentified Coconut

VINEGAR

40 Cider
41 Distilled-White/Unidentified Distilled
42 Distilled-Colored/Dark
43 Wine Vinegar
48 Other Vinegar
49 Unidentified Vinegar

MISCELLANEOUS FOOD ITEMS

50 Food Coloring
51 Hops
52 Pectin
53 Waters-Cooking Other Than Meat, Fish or Poultry
58 Other (N.E.C.) Food Items[3)]

SUGARS-REGULAR[2)]

60 Granulated White/Unidentified Sugar
61 Brown-Dark
62 Brown-Light
63 Brown-Unidentified
64 Crystal/Rock Sugar
65 Lump/Loaf Sugar
66 Maple Sugar
67 Powdered Sugar
68 Raw Sugar
69 Other Sugar

SUGAR SUBSTITUTES

70 Granulated
71 Liquid
72 Tablet
78 Other Sugar Substitute
79 Unidentified Sugar Substitute

2nd LEVEL

FLOURS

01 All Purpose White
02 Cake Flour[1)]
03 Dietetic
04 Gluten
05 Instant
06 Pastry Flour
07 Potato Flour
08 Rye
09 Self-Rising
10 Soy
11 Whole Wheat/Graham/Bran
18 Other Flour
19 Unidentified Flour

LEAVENINGS

20 Baking Powder
21 Baking Soda
22 Cream of Tartar
23 Sour Dough Starter
28 Other Leavening
29 Unidentified Leavening

YEAST

30 Compressed (Bulk)
31 Dry
38 Other Yeast
39 Unidentified Yeast

OTHER STARCH PRODUCTS

40 Cornstarch[2)]
41 Tapioca-Regular/Pearl[2)]
42 Tapioca-Quick Cooking[2)]
48 Other Starch Product

DOUGHS/CRUSTS-COMMERCIALLY PREPARED

50 Dough-Bread/Rolls/Sweet Roll
51 Pie/Pastry-Shell (Dough Type Only)
52 Pie/Pastry-Sticks
53 Pie/Pastry-Dry Mix
54 Pie/Pastry-Unidentified
55 Pizza Crust
58 Other Commercial Crust/Dough
59 Unidentified Commercial Crust/Dough

OTHER CRUST/SHELL/TOPPING-COMMERCIAL PREPARED

60 Graham Cracker
61 Meringue/Meringue Shell
62 Other Crumb
63 Other Pie/Tart Crust/Shell
64 Ice Cream Cones[7)]
68 Other Commercial Crust/Shell
69 Unidentified Commercial Crust/Shell

OTHER MIXES

70 All Purpose
71 Batter
72 Breading
73 Filling Mix (N.E.C.)[3)]
78 Other Mix
79 Unidentified Mix[3)] (N.E.C.)

CRUSTS/TOPPING-HOMEMADE

80 Biscuit Dough
81 Coconut
82 Crumb-Graham Cracker
83 Crumb-Flour
84 Crumb-Vanilla Wafer
85 Crumb-Other Wafer
86 Crumb-Other
87 Crumb-Unidentified
88 Meringue/Meringue Shell
89 Puff Pastry
90 Regular Flour Crust
98 Other Homemade Crust
99 Unidentified Homemade Crust

EXHIBIT 33B

1L.89 SPREADS--MEAT, FISH, POULTRY, SNACK, SPREADS, DIPS, PEANUT BUTTER, OTHER NUT SPREADS[1)]

2nd LEVEL

SANDWICH SPREAD-SALAD DRESSING

01 Mayonnaise Relish Type
02 Salad Dressing Relish Type
08 Other Salad Dressing Sandwich Spread
09 Unidentified Sandwich Spread

SANDWICH-TOPPINGS, FILLINGS--MEAT/FISH/POULTRY/EGG

10 Chicken-Salad Type
11 Ham-Salad Type
12 Tuna Salad Type
13 Egg Salad Type
15 Other Fish/Seafood
16 Other Meat
17 Other Poultry
18 Other/Combination of Above
19 Unidentified Sandwich Filling

SANDWICH TOPPINGS, FILLINGS--OTHER

20 French Onion
21 Fruit[2)]
22 Vegetable
28 Other Sandwich Topping/Filling

PASTES/PATE

30 Anchovy Paste
31 Beef/Potted Beef
32 Caviar Paste
33 Chicken Paste
34 Deviled Ham
35 Liver/Liver Pudding
38 Other Pastes/Pate
39 Unidentified Pastes/Pate

SNACKS/DIPS/SPREADS/CHEESE BASE

40 Cream Cheese Base
41 Cottage Cheese Base
42 Neufchatel Cheese Base
48 Other Cheese Base Dip
49 Unidentified Cheese Base Dip

SNACK DIPS/SPREADS--OTHER

50 Mayonnaise/Viscous Dressing Base[3)]
51 Sour Cream Base
52 Combination Cream Cheese and Milk
53 Combination Cream Cheese and Sour Cream
54 Combination Cottage Cheese and Sour Cream
55 Combination - 2 or More Cheese
58 Other Dip/Spread
59 Unidentified Dip

PEANUT BUTTER

70 Chunk Style-Plain/Unidentified
71 Chunk Style-Flavored
72 Creamy Style-Plain/Unidentified
73 Creamy Style-Bacon Flavor
74 Creamy Style-Other Flavor
78 Other Peanut Butter
79 Unidentified Peanut Butter

OTHER NUT SPREADS

80 Peanut Substitute-Plain/Unidentified
81 Peanut Substitute-Flavored
82 Peanut Butter and Jelly Combined
88 Other Nut Spreads
89 Unidentified Nut Spreads

Exhibit 33C--MRCA Codes for Infant Formula Products and Baby Foods

Listed below are the MRCA code numbers for the individual food products that were assigned to the NAS infant formula product and baby food categories. The code numbers correspond to the list of MRCA individual food products and code numbers shown in the subsequent pages of this Exhibit 33C. The foods listed in this exhibit are for foods eaten in the home; a similar list of MRCA codes was prepared for foods eaten away from home. (Note: Code numbers for regular foods are shown in Exhibit 33B.)

GROUPING OF MRCA INFANT FORMULA PRODUCTS AND BABY FOODS INTO NAS FOOD CATEGORIES

NAS # 81--Baked Goods

54/91-92, 94

NAS # 82--Cereals

54/01-19

NAS # 83--Formula Products

54/93
55/60-69

NAS # 84--Processed Fruits, Juices, Drinks

54/20-49, 90

NAS # 85--Meat Products

54/60-65, 67, 69

NAS # 86--Poultry Products

54/66

NAS # 87--Egg Products

54/73-76

NAS # 88--Fish Products

54/68

NAS # 89--Processed Vegetables

54/50-59

NAS # 90--Puddings, Custards, etc.

55/40-59

NAS # 91--Soups

54/77-82

NAS # 92--High Meat Dinners, Cheese Foods

55/01-29
54/70-72

NAS # 93--Combination Dinners (Meat & Vegetables)

55/01-29
55/30-39

EXHIBIT 33C

2nd LEVEL

CEREAL

01 Barley
02 Corn
03 High Protein-Plain[1)]
04 High Protein-Fruit
05 Mixed Cereal-Plain[1)]
06 Mixed Cereal-Fruit
07 Oatmeal-Plain[1)]
08 Oatmeal-Fruit
09 Rice-Plain[1)]
10 Rice-Fruit
11 Wheat
12 Six-Pak/Assorted[2)]
18 Other Baby Cereal
19 Unidentified Baby Cereal

JUICE

20 Apple
21 Apple-Other Fruit
22 Mixed Fruit Combination
23 Orange
24 Orange-Other Fruit[3)]
25 Pineapple
26 Pineapple-Grapefruit
27 Vegetable (All)
28 Other Baby Juice
29 Unidentified Baby Juice

FRUIT-REGULAR

30 Apple Sauce-Plain[1)]
31 Apple Sauce-Other Fruit
32 Banana-Plain[1)]
33 Banana-Other Fruit
34 Peaches
35 Pears
36 Pineapple
37 Other Combination Fruit
38 Other Fruit
39 Unidentified Fruit

FRUIT-WITH TAPIOCA/STARCH

40 Apricot-Tapioca
41 Banana-Tapioca
42 Fruit Dessert-Tapioca
43 Plums-Tapioca
44 Prunes-Tapioca
45 Combination Fruit-Tapioca
46 Tutti-Frutti
48 Other Fruit with Tapioca
49 Unidentified Fruit-Tapioca

VEGETABLES[4)]

50 Beets
51 Carrots/Creamed Carrots
52 Green Beans
53 Mixed Vegetables
54 Peas/Creamed Peas
55 Spinach/Creamed Spinach
56 Squash
57 Sweet Potatoes
58 Other Vegetables
59 Unidentified Vegetables

MEATS/FISH/POULTRY/MEAT STICKS[4)]

60 Beef/Beef Heart
61 Ham
62 Lamb
63 Liver
64 Meat Sticks (All)
65 Pork
66 Poultry
67 Veal
68 Other Meat
69 Unidentified Meat

CHEESE, EGGS, SOUP

70 Cottage Cheese-Plain[1)]
71 Cottage Cheese-Fruit
72 Cottage Cheese and Other
73 Egg Yolks-Plain/Unidentified
74 Egg Yolks-Bacon
75 Egg Yolks-Ham
76 Egg Yolks-Other
77 Soup-Beef Liver
78 Soup-Chicken
79 Soup-Cream of Chicken
80 Soup-Vegetable
81 Soup-Other
82 Soup-Unidentified

OTHER AND UNIDENTIFIED BABY FOOD

90 Banana Flakes (Kanana)
91 Biscuits-Teething
92 Cookies
93 Fortified Formula -Sweetener
94 Snacks-Other
98 Other Baby Food
99 Unidentified Baby Food

2nd LEVEL

MEAT/VEGETABLE-DINNERS[1)]

01 Bacon-Egg-Cereal
02 Bacon-Vegetable
03 Beef Dinner
04 Beef-Vegetable
05 Beef-Vegetable-Cereal
06 Chicken-Dinner
07 Chicken-Vegetable
08 Chicken-Dumplings
09 Ham Dinner
10 Ham-Vegetable
11 Ham-Vegetable-Other Meat
12 Lamb-Vegetable
13 Liver-Vegetable
14 Liver-Vegetable-Other Meat
15 Turkey Dinner
16 Turkey-Vegetable
17 Veal Dinner
18 Veal-Vegetable
28 Other Meat/Vegetable Dinner
29 Unidentified Meat/Vegetable Dinner

PASTA (BASE) DINNERS[2)]

30 Macaroni-Beef
31 Macaroni-Meat-Vegetable
32 Noodles-Beef
33 Noodles-Other Meat
34 Noodles-Poultry
35 Noodles-Poultry-Vegetable
36 Noodles-Tuna
37 Rice Dinner
38 Spaghetti Dinner
39 Other/Unidentified Pasta Dinner

DESSERT-PUDDINGS-GELS

40 Apple
41 Apple-Raspberry
42 Apricot
43 Banana
44 Butterscotch
45 Cherry
46 Cherry-Apple
47 Cherry-Vanilla
48 Custard-Plain/Vanilla
49 Custard-Chocolate Flavored
50 "Mixed Fruit"
51 Orange
52 Orange-Pineapple
53 Pineapple
54 Tropical Fruit
58 Other Dessert/Pudding/Gel
59 Unidentified Dessert/Pudding/Gel

FORMULAE

60 Evaporated Milk Base
61 Filled Milk Base
62 Fresh/Whole Milk Base
63 Powdered Non-Fat Dry Milk Base
64 Other Milk/Milk Product Base
65 Substitute Milk (Non-Dairy) Base
66 Pediatric Base/Prepared Base
67 Water Base
68 Other Formulae Base
69 Unidentified Formulae Base

Exhibit 34--MRCA Frequency of Eating of Regular Foods by Males + Females in Different Age Groups, TOTAL SAMPLE

Food Category		Eatings per Day							
		0-5 Months[1]		6-11 Months[2]		12-23 Months[3]		2-65+ Years[4]	
No.	Name	Mean	90 PCT	Mean	90 PCT	Mean	90 PCT	Mean	90 PCT
01	BAKED GOODS	0.09	0.12	1.49	3.03	2.34	3.84	2.66	3.95
02	BREAK CERLS	0.02	0.05	0.33	0.88	0.48	0.94	0.33	0.87
03	OTHER GRAIN	0.01	0.03	0.12	0.35	0.24	0.55	0.22	0.49
04	FATS OILS	0.03	0.04	0.48	1.26	0.85	1.63	1.15	2.09
05	MILK PRODS	0.06	0.05	0.56	2.67	0.41	1.30	0.43	1.32
06	CHEESE	0.00	0.03	0.06	0.20	0.18	0.51	0.19	0.48
07	FROZN DAIRY	0.01	0.06	0.14	0.38	0.23	0.54	0.23	0.55
08	PROCSD FRUT	0.06	0.17	0.50	1.25	0.81	1.60	0.66	1.40
09	FRUIT ICES	a	a	0.01	0.03	0.01	0.04	0.01	0.03
10	MEAT PRODS	0.02	0.04	0.30	0.80	0.63	1.08	0.73	1.21
11	POULTRY	0.01	0.03	0.04	0.15	0.07	0.20	0.10	0.27
12	EGG PRODS	0.00	0.03	0.01	0.04	0.02	0.07	0.03	0.10
13	FISH PRODS	0.01	0.03	0.04	0.15	0.08	0.20	0.11	0.27
14	PROCSD VEGS	0.03	0.09	0.45	1.05	0.80	1.34	1.01	1.69
15	CONDM RELSH	0.00	0.03	0.10	0.28	0.18	0.49	0.32	0.77
16	SOFT CANDY	0.00	0.03	0.06	0.18	0.10	0.27	0.14	0.42
17	CONF FROST	0.00	0.03	0.03	0.05	0.01	0.04	0.02	0.04
18	JAM JELLY	0.00	0.03	0.12	0.39	0.18	0.69	0.16	0.50
19	SWEET SAUCE	0.03	0.03	0.06	0.21	0.10	0.28	0.11	0.29
20	GELATIN PUD	0.02	0.03	0.14	0.44	0.13	0.33	0.14	0.37
21	SOUPS	0.00	0.03	0.16	0.51	0.20	0.56	0.13	0.34
22	SNACK FOODS	0.00	0.03	0.09	0.28	0.19	0.52	0.17	0.49
23	BEV TYPE I	0.02	0.03	0.15	0.50	0.32	0.97	0.35	0.95
24	BEV TYPE II	a	a	0.00	0.03	0.00	0.03	0.09	0.26
25	NUT PRODS	0.00	0.03	0.08	0.28	0.13	0.42	0.11	0.32
26	RECONST VEG	a	a	a	a	a	a	0.01	0.03
27	GRAVIES	0.01	0.03	0.06	0.18	0.10	0.28	0.12	0.31
28	IMIT DAIRY	a	a	0.02	0.03	0.01	0.05	0.06	0.10
29	FRESH MILK	0.72	2.66	2.08	3.89	2.19	3.99	1.20	2.76
30	HARD CANDY	a	a	0.01	0.04	0.02	0.07	0.02	0.06
31	CHEWING GUM	b	b	0.02	0.03	0.03	0.11	0.05	0.13
32	GRAN SUGAR	0.14	0.71	0.30	0.85	0.32	0.78	0.58	1.54
33	SUGAR SUBS	b	b	0.02	0.03	0.00	0.03	0.08	0.08
34	INS COF TEA	0.01	0.01	0.04	0.10	0.04	0.16	0.46	0.98
37	FRESH FRUITS	0.02	0.04	0.19	0.58	0.27	0.71	0.40	1.01
38	FRESH MEAT	0.01	0.04	0.26	0.71	0.56	0.95	0.67	1.17
39	FRESH POULT	0.01	0.03	0.05	0.14	0.10	0.24	0.11	0.27
40	FRESH EGGS	0.05	0.10	0.27	0.72	0.40	0.81	0.37	0.87
41	FRESH FISH	b	b	0.01	0.04	0.02	0.08	0.02	0.09
42	FRESH VEGS	0.03	0.06	0.43	0.96	0.61	1.26	0.92	1.69
43	HOMEMADE JAMS	b	b	0.03	0.04	0.05	0.15	0.08	0.29
44	HOMEMADE SOUP	0.00	0.03	0.02	0.09	0.03	0.13	0.04	0.14
48	SEAS FLAVRS	b	b	0.01	0.03	0.01	0.05	0.01	0.05

[1]96 in sample; [2]141 in sample; [3]147 in sample; [4]12473 in sample.

[a]No evidence of consumption.

[b]Insufficient information, but evidence of very limited consumption.

Exhibit 35--MRCA Frequency of Eating of Regular Foods by Males + Females in Different Age Groups, EATERS ONLY

EXHIBIT 35

Food Category		Eatings per Day per Food Category											
		0-5 Months[1]			6-11 Months[2]			12-23 Months[3]			2-65+ Years[4]		
No.	Name	Mean	90 PCT	Eaters	Mean	90 PCT	Eaters	Mean	90 PCT	Eaters	Mean	90 PCT	Eaters
01	BAKED GOODS	0.42	1.39	21	1.68	3.19	125	2.35	3.85	146	2.66	3.95	12461
02	BREAK CERLS	0.15	0.39	11	0.49	0.96	95	0.53	0.95	135	0.45	0.93	9310
03	OTHER GRAIN	0.17	0.36	5	0.22	0.50	76	0.29	0.58	121	0.27	0.53	10133
04	FATS OILS	0.32	0.90	9	0.70	1.40	97	0.88	1.63	141	1.18	2.10	12249
05	MILK PRODS	0.59	1.29	10	1.17	3.56	67	0.63	2.29	95	0.62	1.70	8681
06	CHEESE	0.14	0.24	2	0.18	0.34	44	0.27	0.57	99	0.26	0.55	9011
07	FROZN DAIRY	0.10	0.23	13	0.22	0.44	87	0.29	0.59	115	0.30	0.61	9480
08	PROCSD FRUT	0.34	0.86	18	0.65	1.43	109	0.94	1.71	126	0.72	1.43	11451
09	FRUIT ICES	a	a	0	0.20	0.54	9	0.11	0.24	14	0.15	0.32	787
10	MEAT PRODS	0.16	0.39	10	0.43	0.88	97	0.66	1.09	140	0.73	1.21	12353
11	POUNTRY	0.14	0.36	5	0.12	0.24	50	0.14	0.23	76	0.17	0.32	7868
12	EGG PRODS	0.07	0.10	2	0.10	0.17	15	0.10	0.21	23	0.12	0.22	2696
13	FISH PRODS	0.32	0.59	2	0.12	0.24	46	0.13	0.24	90	0.16	0.31	8201
14	PROCSD VEGS	0.18	0.35	16	0.57	1.10	112	0.83	1.35	142	1.01	1.70	12400
15	CONDM RELSH	0.11	0.16	4	0.23	0.42	61	0.27	0.63	98	0.40	0.83	10103
16	SOFT CANDY	0.09	0.15	4	0.20	0.44	41	0.22	0.47	69	0.27	0.58	6386
17	CONF FROST	0.07	0.10	2	0.24	0.64	16	0.14	0.29	14	0.15	0.28	1267
18	JAM JELLY	0.07	0.10	2	0.32	0.72	52	0.36	0.79	75	0.31	0.71	6456
19	SWEET SAUCE	0.73	1.86	4	0.17	0.33	44	0.18	0.32	80	0.20	0.39	6881
20	GELATIN PUD	0.29	0.91	8	0.26	0.54	79	0.20	0.40	101	0.22	0.44	8226
21	SOUPS	0.09	0.15	4	0.34	0.78	68	0.29	0.63	103	0.20	0.43	7812
22	SNACK FOODS	0.11	0.16	2	0.25	0.45	49	0.28	0.60	97	0.28	0.61	7595
23	BEV TYPE I	0.31	1.27	7	0.31	0.68	68	0.48	1.11	98	0.48	1.09	9112
24	BEV TYPE II	a	a	0	0.09	0.14	5	0.09	0.15	7	0.37	0.91	2945
25	NUT PRODS	0.07	0.10	2	0.23	0.49	47	0.27	0.63	69	0.22	0.48	5921
26	RECONST VEG	a	a	0	a	a	0	a	a	0	0.09	0.15	4
27	GRAVIES	0.11	0.21	5	0.14	0.26	62	0.19	0.39	75	0.19	0.39	7852
28	IMIT DAIRY	a	a	0	0.24	0.44	12	0.11	0.20	17	0.37	1.08	1962
29	FRESH MILK	1.54	3.86	45	2.27	4.26	129	2.29	4.00	141	1.35	2.84	11092
30	HARD CANDY	a	a	0	0.11	0.17	15	0.15	0.31	22	0.17	0.36	1497
31	CHEWING GUM	b	b	1	0.27	0.46	11	0.20	0.42	21	0.23	0.50	2532
32	GRAN SUGAR	0.71	1.82	19	0.48	1.01	89	0.43	0.84	109	0.74	1.76	9862
33	SUGAR SUBS	b	b	1	0.45	0.77	7	0.14	0.30	3	0.70	1.74	1355
34	INS COF TEA	0.09	0.45	7	0.12	0.31	46	0.10	0.26	64	0.54	1.00	3518
37	FRESH FRUITS	0.19	0.43	10	0.38	0.82	70	0.38	0.84	105	0.51	1.15	9602
38	FRESH MEAT	0.16	0.36	9	0.40	0.80	91	0.60	0.95	138	0.68	1.17	12336
39	FRESH POULT	0.10	0.21	5	0.12	0.22	54	0.14	0.29	99	0.16	0.31	8185
40	FRESH EGGS	0.35	0.94	14	0.41	0.85	92	0.44	0.84	133	0.42	0.90	11028
41	FRESH FISH	b	b	1	0.10	0.17	13	0.09	0.15	30	0.10	0.17	2676
42	FRESH VEGS	0.21	0.45	12	0.57	1.04	107	0.64	1.27	140	0.93	1.70	12289
43	HOMEMADE JAMS	b	b	1	0.34	0.79	14	0.30	0.69	26	0.33	0.74	3084
44	HOMEMADE SOUP	0.10	0.16	3	0.13	0.24	21	0.14	0.21	28	0.14	0.25	3275
48	SEAS FLAVRS	b	b	1	0.11	0.18	10	0.10	0.16	18	0.13	0.24	1383

[1]96 in sample; [2]141 in sample; [3]147 in sample; [4]12473 in sample.

[a]No evidence of consumption.

[b]Insufficient information, but evidence of very limited consumption.

EXHIBIT 36

Exhibit 36--MRCA Frequency of Eating of Infant Formula Products and Baby Foods by Males + Females, 0-23 Months, TOTAL SAMPLE

Food Category		Eatings per Day					
		0-5 Months[1]		6-11 Months[2]		12-23 Months[3]	
No.	Name	Mean	90 PCT	Mean	90 PCT	Mean	90 PCT
81	BAKED GOODS	0.01	0.03	0.03	0.03	b	b
82	CEREALS	1.13	1.96	0.53	1.39	0.11	0.51
83	FORMULAS	2.92	5.35	0.41	1.96	0.12	0.03
84	PROCSD FRUT	1.04	2.47	0.71	2.24	0.16	0.69
85	MEAT PRODS	0.12	0.57	0.10	0.39	0.01	0.03
86	POULTRY	0.05	0.24	0.03	0.14	0.00	0.03
87	EGG PRODS	0.05	0.09	0.05	0.14	0.01	0.03
88	FISH PRODS	b	b	b	b	a	a
89	PROCSD VEGS	0.44	1.09	0.23	0.74	0.02	0.03
90	PUDDINGS	0.09	0.35	0.09	0.32	0.03	0.04
91	SOUPS	0.02	0.10	0.02	0.07	0.01	0.03
92	MEAT DINNER	0.04	0.16	0.05	0.21	0.01	0.03
93	COMB DINNER	0.27	0.93	0.46	1.28	0.11	0.42

[1]96 in sample; [2]141 in sample; [3]147 in sample.

[a]No evidence of consumption.

[b]Insufficient information, but evidence of very limited consumption.

EXHIBIT 37

Exhibit 37--MRCA Frequency of Eating of Infant Formula Products and Baby Foods by Males + Females, 0-23 Months, EATERS ONLY

Food Category		Eatings per Day per Food Category								
		0-5 Months[1]			6-11 Months[2]			12-23 Months[3]		
No.	Name	Mean	90 PCT	Eaters	Mean	90 PCT	Eaters	Mean	90 PCT	Eaters
81	BAKED GOODS	0.14	0.22	4	0.36	1.18	10	b	b	1
82	CEREALS	1.28	1.97	85	0.87	1.76	86	0.67	1.02	24
83	FORMULAS	3.50	5.68	80	1.76	3.67	33	1.88	3.90	9
84	PROCSD FRUT	1.29	2.52	77	1.08	2.51	93	0.71	1.65	34
85	MEAT PRODS	0.49	0.79	24	0.43	0.81	32	0.31	0.78	6
86	POULTRY	0.30	0.62	16	0.27	0.44	18	0.36	0.52	2
87	EGG PRODS	0.44	0.96	11	0.35	0.95	22	0.21	0.65	4
88	FISH PRODS	b	b	1	b	b	1	a	a	0
89	PROCSD VEGS	0.72	1.57	59	0.58	1.36	55	0.36	0.98	8
90	PUDDINGS	0.28	0.56	32	0.25	0.45	49	0.33	0.56	14
91	SOUPS	0.18	0.30	13	0.21	0.49	17	0.20	0.49	7
92	MEAT DINNER	0.23	0.30	19	0.29	0.71	26	0.16	0.32	10
93	COMB DINNER	0.57	1.12	46	0.77	1.59	84	0.58	1.29	28

[1]96 in sample; [2]141 in sample; [3]147 in sample.

[a]No evidence of consumption.

[b]Insufficient information, but evidence of very limited consumption.

Exhibit 38--Explanatory Notes on Exhibits 34-37 (MRCA Data)

Note 1

The sample populations were based on either "total sample" or "eaters only" as indicated in the exhibit titles. The significance of these terms is explained in the discussion section of the report in Chapter X under the heading Daily Intakes (Tables 13-16).

Note 2

The data given under the columns headed "Mean" are values corresponding to the arithmetical mean of the daily eating frequencies obtained for the sample population indicated.

The data given under the columns headed "90 PCT" are values corresponding to daily eating frequencies at the 90th percentile levels; thus, 90% of the sample population indicated will eat less frequently than the values shown, and 10% will eat more frequently.

Note 3

Frequency of eating data were obtained from MRCA on brewed and instant coffee and tea, but not on instant coffee and tea alone. The Subcommittee has estimated that approximately one-third of all coffee and tea consumed is prepared from instant products; the original MRCA data were therefore reduced by two-thirds to obtain the frequency values shown in Exhibits 34 and 35 for category 34 (INS COF TEA).

Note 4

See Exhibits 32 and 33A-C for additional information on the MRCA data.

Exhibit 39--USDA Mean Portion Sizes of Regular Foods Consumed by Males + Females in Different Age Groups

EXHIBIT 39

Food Category No.	Food Category Name	Portion Size, Grams 0-5 Months[1]	6-11 Months[2]	12-23 Months[3]	2-65+ Years[4]
01	BAKED GOODS	37.0	17.0	23.3	51.6
02	BREAK CERLS	34.4	68.1	53.8	59.7
03	OTHER GRAIN	51.9	82.1	69.0	126.2
04	FATS OILS	15.5	5.9	7.3	15.1
05	MILK PRODS	88.1	112.3	134.5	91.3
06	CHEESE	5.0	48.7	43.4	49.3
07	FROZN DAIRY	71.0	70.0	62.6	111.6
08	PROCSD FRUT	74.9	103.4	124.8	179.1
09	FRUIT ICES	a	25.0*	58.6	74.7
10	MEAT PRODS	69.5	69.5	48.2	107.8
11	POULTRY	70.0	87.3	94.2	123.6
12	EGG PRODS	33.0	44.1	56.8	72.6
13	FISH PRODS	10.0*	32.8	65.9	115.1
14	PROCSD VEGS	44.8	53.2	48.5	84.5
15	CONDM RELSH	4.0*	8.0*	15.5	27.5
16	SOFT CANDY	63.0	38.2	33.9	42.3
17	CONF FROST	2.2	3.5	19.0	22.5
18	JAM JELLY	10.0*	56.8	16.3	35.7
19	SWEET SAUCE	11.2	14.8	26.8	62.2
20	GELATIN PUD	79.6	88.6	102.7	141.2
21	SOUPS	46.5	143.8	170.7	249.5
22	SNACK FOODS	3.0*	4.0*	5.9	7.6
23	BEV TYPE I	106.5	154.2	167.5	293.6
24	BEV TYPE II	b	4.0*	8.0†	363.0
25	NUT PRODS	5.0*	48.3	21.5	49.1
26	RECONST VEG	b	b	b	20.0†
27	GRAVIES	10.0	22.1	36.1	68.0
28	IMIT DAIRY	a	68.0	75.0*	15.7
29	FRESH MILK	174.0	198.2	192.6	198.8
30	HARD CANDY	a	7.0	13.6	28.3
31	CHEWING GUM	b	3.0†	3.0†	3.0†
32	GRAN SUGAR	5.6	6.0	8.0	14.6
33	SUGAR SUBS	b	0.5†	0.5†	1.0†
34	INS COF TEA	31.0	132.7	138.5	265.7
37	FRESH FRUITS	(74.9)	(103.4)	(124.8)	(179.1)
38	FRESH MEAT	(69.5)	(69.5)	(48.2)	(107.8)
39	FRESH POULT	(70.0)	(87.3)	(94.2)	(123.6)
40	FRESH EGGS	(33.0)	(44.1)	(56.8)	(72.6)
41	FRESH FISH	b	(32.8)	(65.9)	(115.1)
42	FRESH VEGS	(44.8)	(53.2)	(48.5)	(84.5)
43	HOMEMADE JAMS	b	(56.8)	(16.3)	(35.7)
44	HOMEMADE SOUP	(46.5)	(143.8)	(170.7)	(249.5)
48	SEAS FLAVRS	b	0.2†	0.3†	1.0†

[1]171 in sample; [2]226 in sample; [3]334 in sample; [4]13590 in sample.

[a]No evidence of consumption in either MRCA or USDA survey.

[b]Food category not included in USDA survey and little or no evidence of consumption in MRCA survey.

*Evidence of consumption in MRCA survey but no evidence in USDA survey; portion size shown is estimated.

†Food category not included in USDA survey, but evidence of consumption in MRCA survey; portion size shown is estimated.

EXHIBIT 40

Exhibit 40--USDA Mean Portion Sizes of Infant Formula Products and Baby Foods Consumed by Males + Females, 0-23 Months

Food Category		Portion Size, Grams		
No.	Name	0-5 Months[1]	6-11 Months[2]	12-23 Months[3]
81	BAKED GOODS	11.0	10.2	x
82	CEREALS	11.9	17.3	17.7
83	FORMULAS	114.9	166.2	190.7
84	PROCSD FRUT	63.5	95.2	102.0
85	MEAT PRODS	65.7	57.8	69.4
86	POULTRY	88.2	123.1	114.2
87	EGG PRODS	70.5	111.4	139.5
88	FISH PRODS	x	x	x
89	PROCSD VEGS	60.7	84.8	107.2
90	PUDDINGS	83.5	112.2	88.3
91	SOUPS	62.0	126.0	144.6
92	MEAT DINNER	x	136.7	56.0
93	COMB DINNER	84.6	110.0	139.2

[1]160 in sample; [2]173 in sample; [3]116 in sample;

[x]Little or no evidence of consumption in either the MRCA or USDA surveys.

Exhibit 41--Explanatory Notes on Exhibits 39 and 40 (USDA Data)

Note 1

Portion sizes shown in parentheses (Exhibit 39) for foods in categories 37-44 (i.e., fresh or homemade foods) were assumed to be the same as those for processed foods in the corresponding categories. As indicated in Exhibit 33A, Note 3, however, daily intakes were not computed on the basis of consumption of such unprocessed foods.

Note 2

Certain foods on which food consumption data were required were not included in the USDA survey. For these foods, the Subcommittee estimated the mean portion sizes (see footnotes in Exhibits 39 and 40).

Note 3

Certain other foods on which food consumption data were required were included in the USDA survey, but there was little or no evidence of consumption of these foods by the USDA sample population. This was especially true (and not unexpected) regarding consumption of regular foods by babies and infants 0-23 months of age. For some of these foods, however, there was evidence of consumption in the MRCA census, and in these cases the Subcommittee estimates the mean portion sizes (see footnotes in Exhibits 39 and 40).

Note 4

See Exhibits 32 and 33A-C for additional information on the USDA data.

EXHIBIT 42

Exhibit 42--Daily Consumption of Regular Foods by Males + Females, 2-65+ Years, TOTAL SAMPLE

Food Category		Consumption, Grams	
No.	Name	Mean[1]	High[2]
01	BAKED GOODS	137.2	203.8
02	BREAK CERLS	20.0	51.8
03	OTHER GRAIN	27.8	61.4
04	FATS OILS	17.5	31.6
05	MILK PRODS	39.5	120.6
06	CHEESE	9.4	23.6
07	FROZN DAIRY	25.6	61.7
08	PROCSD FRUT	118.3	250.6
09	FRUIT ICES	0.7	2.5
10	MEAT PRODS	78.4	130.1
11	POULTRY	12.9	32.8
12	EGG PRODS	1.9	6.9
13	FISH PRODS	12.4	30.9
14	PROCSD VEGS	85.0	143.2
15	CONDM RELSH	8.8	21.2
16	SOFT CANDY	5.8	17.6
17	CONF FROST	0.3	0.8
18	JAM JELLY	5.7	17.7
19	SWEET SAUCE	6.8	17.9
20	GELATIN PUD	20.4	52.5
21	SOUPS	31.7	84.5
22	SNACK FOODS	1.3	3.7
23	BEV TYPE I	104.0	277.7
24	BEV TYPE II	32.5	94.4
25	NUT PRODS	5.2	15.5
26	RECONST VEG	0.2	0.6
27	GRAVIES	8.3	21.3
28	IMIT DAIRY	0.9	1.5
29	*FRESH MILK	238.3	549.3
30	HARD CANDY	0.6	1.7
31	CHEWING GUM	0.2	6.4
32	GRAN SUGAR	8.6	22.6
33	SUGAR SUBS	0.08	0.08
34	INS COF TEA	121.1	259.4
37	*FRESH FRUITS	70.8	181.5
38	*FRESH MEAT	72.1	125.9
39	*FRESH POULT	13.3	32.9
40	*FRESH EGGS	26.9	63.4
41	*FRESH FISH	2.6	10.4
42	*FRESH VEGS	77.4	142.8
43	*HOMEMADE JAMS	2.9	10.2
44	*HOMEMADE SOUP	9.0	34.5
45	SEAS FLAVRS	0.01	0.05

[1]Based on MRCA mean frequency of eating (Exhibit 34) and USDA mean portion size (Exhibit 39).

[2]Based on MRCA 90th percentile frequency of eating (Exhibit 34) and USDA mean portion size (Exhibit 39).

*Consumption not used in GRAS daily intake calculations.

Exhibit 43--Daily Consumption of Regular Foods by Males + Females, 0-23 Months, TOTAL SAMPLE

EXHIBIT 43

Food Category		(0-5 Months) Consumption, Grams		(6-11 Months) Consumption, Grams		(12-23 Months) Consumption, Grams	
No.	Name	Mean[1]	High[2]	Mean[1]	High[2]	Mean[1]	High[2]
01	BAKED GOODS	3.4	4.5	25.4	51.8	54.5	89.8
02	BREAK CERLS	0.6	1.7	22.3	59.8	26.1	50.9
03	OTHER GRAIN	0.5	1.7	9.7	28.6	16.4	37.9
04	FATS OILS	0.5	0.5	2.8	7.5	6.3	12.0
05	MILK PRODS	5.4	4.0	62.4	300.1	54.5	174.4
06	CHEESE	***	0.1	2.7	9.7	7.8	22.2
07	FROZN DAIRY	1.0	4.1	9.5	26.4	14.4	33.8
08	PROCSD FRUT	4.7	12.6	51.8	129.0	100.6	199.7
09	FRUIT ICES	0.0	0.0	0.3	0.8	0.6	2.1
10	MEAT PRODS	1.1	2.9	20.7	55.8	30.2	51.9
11	POULTRY	0.5	2.3	3.9	13.2	6.6	18.4
12	EGG PRODS	***	1.0	0.5	1.8	0.9	3.9
13	FISH PRODS	0.1	0.3	1.3	4.9	5.4	13.5
14	PROCSD VEGS	1.4	4.2	24.0	56.0	39.0	65.3
15	CONDM RELSH	***	0.1	0.8	2.2	2.8	7.6
16	SOFT CANDY	0.2	2.0	2.2	6.8	3.5	9.3
17	CONF FROST	***	0.1	0.1	0.2	0.2	0.7
18	JAM JELLY	***	0.3	6.7	22.3	3.0	11.2
19	SWEET SAUCE	0.3	0.4	0.9	3.1	2.6	7.6
20	GELATIN PUD	2.0	2.7	12.8	38.8	13.8	33.6
21	SOUPS	0.2	1.5	23.3	72.7	34.8	96.1
22	SNACK FOODS	***	0.1	0.4	1.1	1.1	3.1
23	BEV TYPE I	2.4	3.6	22.7	77.7	54.2	162.5
24	BEV TYPE II	0.0	0.0	***	0.1	***	0.2
25	NUT PRODS	***	0.2	3.7	13.4	2.7	9.0
26	RECONST VEG	0.0	0.0	0.0	0.0	0.0	0.0
27	GRAVIES	0.1	0.3	1.4	3.9	3.6	10.2
28	IMIT DAIRY	0.0	0.0	1.4	2.3	0.8	3.4
29	*FRESH MILK	125.9	463.7	411.9	770.2	422.6	768.3
30	HARD CANDY	0.0	0.0	0.1	0.3	0.3	0.9
31	CHEWING GUM	***	***	0.1	0.1	0.1	0.3
32	GRAN SUGAR	0.8	4.0	1.8	5.1	2.5	6.3
33	SUGAR SUBS	***	***	0.01	0.02	0.0	0.02
34	INS COF TEA	0.2	3.3	5.3	13.1	6.2	22.4
37	*FRESH FRUITS	1.5	3.0	19.7	60.0	33.7	88.5
38	*FRESH MEAT	0.7	2.8	18.1	49.3	27.0	45.8
39	*FRESH POULT	0.7	2.1	4.4	12.2	9.4	22.6
40	*FRESH EGGS	1.7	3.3	11.9	31.8	26.4	53.3
41	*FRESH FISH	0.0	0.0	0.4	1.8	1.5	3.0
42	*FRESH VEGS	1.3	2.7	22.9	51.1	29.6	61.1
43	*HOMEMADE JAMS	0.0	0.0	1.7	2.3	0.8	2.4
44	*HOMEMADE SOUP	0.0	1.4	2.9	12.9	5.1	22.2
48	SEAS FLAVRS	***	***	***	0.01	***	0.02

[1]Based on MRCA mean frequency of eating (Exhibit 34) and USDA mean portion size (Exhibit 39).

[2]Based on MRCA 90th percentile frequency of eating (Exhibit 34) and USDA mean portion size (Exhibit 39).

*Consumption not used in GRAS daily intake calculations.

***Insufficient information, but evidence of very limited consumption.

Exhibit 44--Daily Consumption of Infant Formula Products and Baby Foods by Males + Females, 0-23 Months, TOTAL SAMPLE

Food Category		(0-5 Months) Consumption, Grams		(6-11 Months) Consumption, Grams		(12-23 Months) Consumption, Grams	
No.	Name	Mean[1]	High[2]	Mean[1]	High[2]	Mean[1]	High[2]
81	BAKED GOODS	0.1	0.3	0.3	0.3	***	***
82	CEREALS	13.5	23.3	9.2	24.1	2.0	9.0
83	FORMULAS	335.7	615.0	68.4	325.9	22.0	6.2
84	PROCSD FRUT	66.0	157.2	67.8	213.5	16.8	70.3
85	MEAT PRODS	8.0	37.4	5.6	22.5	0.9	2.2
86	POULTRY	4.5	21.1	4.3	17.2	0.6	3.4
87	EGG PRODS	3.6	6.0	6.0	15.8	0.8	4.2
88	FISH PRODS	***	***	***	***	.0.0	0.0
89	PROCSD VEGS	26.8	65.9	19.3	63.0	2.1	3.5
90	PUDDINGS	7.9	28.9	9.7	35.9	2.7	3.1
91	SOUPS	1.5	6.0	3.1	8.2	1.4	4.6
92	MEAT DINNER	1.0	4.0	7.3	29.0	0.6	1.9
93	COMB DINNER	23.0	78.4	50.8	142.3	15.5	59.0

[1]Based on MRCA mean frequency of eating (Exhibit 36) and USDA mean portion size (Exhibit 40).

[2]Based on MRCA 90th percentile frequency of eating (Exhibit 36) and USDA mean portion size (Exhibit 40).

***Insufficient information, but evidence of very limited consumption.

EXHIBIT 45

Exhibit 45--Daily Consumption of Regular Foods by Males + Females, 2-65+ Years, EATERS ONLY

Food Category		Consumption, Grams	
No.	Name	Mean[1]	High[2]
01	BAKED GOODS	137.3	203.9
02	BREAK CERLS	26.8	55.5
03	OTHER GRAIN	34.2	67.3
04	FATS OILS	17.8	31.8
05	MILK PRODS	56.8	155.4
06	CHEESE	13.0	27.1
07	FROZN DAIRY	33.7	68.6
08	PROCSD FRUT	128.8	256.9
09	FRUIT ICES	11.5	23.9
10	MEAT PRODS	79.2	130.4
11	POULTRY	20.4	39.2
12	EGG PRODS	8.7	15.9
13	FISH PRODS	18.9	35.9
14	PROCSD VEGS	85.5	143.4
15	CONDM RELSH	10.9	22.9
16	SOFT CANDY	11.4	24.7
17	CONF FROST	3.4	6.2
18	JAM JELLY	11.0	25.3
19	SWEET SAUCE	12.3	24.4
20	GELATIN PUD	30.9	62.6
21	SOUPS	50.6	106.7
22	SNACK FOODS	2.1	4.6
23	BEV TYPE I	142.3	318.9
24	BEV TYPE II	204.1	504.0
25	NUT PRODS	10.9	23.7
26	RECONST VEG	1.8	3.0
27	GRAVIES	13.3	26.4
28	IMIT DAIRY	5.8	17.0
29	*FRESH MILK	268.0	563.8
30	HARD CANDY	4.9	10.2
31	CHEWING GUM	0.7	1.5
32	GRAN SUGAR	10.8	25.8
33	SUGAR SUBS	0.7	1.7
34	INS COF TEA	143.1	266.2
37	*FRESH FRUITS	92.0	205.5
38	*FRESH MEAT	72.9	126.2
39	*FRESH POULT	20.3	38.6
40	*FRESH EGGS	30.4	65.3
41	*FRESH FISH	12.1	20.1
42	*FRESH VEGS	78.5	143.5
43	*HOMEMADE JAMS	11.6	26.4
44	*HOMEMADE SOUP	34.2	62.4
48	SEAS FLAVRS	0.1	0.2

[1]Based on MRCA mean frequency of eating (Exhibit 35) and USDA mean portion size (Exhibit 39).

[2]Based on MRCA 90th percentile frequency of eating (Exhibit 35) and USDA mean portion size (Exhibit 39).

*Consumption not used in GRAS daily intake calculations.

Exhibit 46--Daily Consumption of Regular Foods by Males + Females, 0-23 Months, EATERS ONLY

Food Category		(0-5 Months) Consumption, Grams		(6-11 Months) Consumption, Grams		(12-23 Months) Consumption, Grams	
No.	Name	Mean[1]	High[2]	Mean[1]	High[2]	Mean[1]	High[2]
01	BAKED GOODS	15.5	51.3	28.7	54.5	54.9	89.8
02	BREAK CERLS	5.1	13.3	33.1	65.1	28.4	51.4
03	OTHER GRAIN	8.9	18.6	18.1	41.5	19.9	39.7
04	FATS OILS	4.9	13.9	4.1	8.3	6.5	12.1
05	MILK PRODS	52.2	113.3	131.3	399.6	84.4	307.5
06	CHEESE	0.7	1.2	8.7	16.3	11.5	24.9
07	FROZN DAIRY	7.0	16.2	15.3	30.8	18.4	36.7
08	PROCSD FRUT	25.3	64.8	67.0	148.2	117.4	213.2
09	FRUIT ICES	0.0	0.0	5.0	10.8	6.6	13.8
10	MEAT PRODS	10.9	27.3	30.1	61.2	31.7	52.5
11	POULTRY	10.0	25.0	10.9	20.6	12.8	21.8
12	EGG PRODS	2.4	3.3	4.4	7.4	5.7	11.9
13	FISH PRODS	3.2	5.9	4.1	7.7	8.8	15.7
14	PROCSD VEGS	8.2	15.7	30.2	58.7	40.4	65.7
15	CONDM RELSH	0.4	0.6	1.8	3.4	4.2	9.7
16	SOFT CANDY	5.6	9.4	7.5	17.0	7.4	16.0
17	CONF FROST	0.2	0.2	0.8	2.2	2.6	5.6
18	JAM JELLY	0.7	1.0	18.3	41.0	5.8	12.9
19	SWEET SAUCE	8.2	21.0	2.5	4.9	4.8	8.6
20	GELATIN PUD	23.5	72.2	22.9	47.8	20.1	41.5
21	SOUPS	4.2	7.0	48.3	112.0	49.6	107.9
22	SNACK FOODS	0.3	0.5	1.0	1.8	1.7	3.5
23	BEV TYPE I	32.6	135.4	47.1	105.4	81.2	186.7
24	BEV TYPE II	0.0	0.0	0.4	0.6	0.7	1.2
25	NUT PRODS	0.4	0.5	11.1	23.5	5.8	13.5
26	RECONST VEG	0.0	0.0	0.0	0.0	0.0	0.0
27	GRAVIES	1.1	2.1	3.1	5.9	7.0	14.0
28	IMIT DAIRY	0.0	0.0	16.6	20.9	8.3	15.0
29	*FRESH MILK	268.5	671.3	450.2	843.8	440.6	770.3
30	HARD CANDY	0.0	0.0	0.8	1.2	2.0	4.2
31	CHEWING GUM	***	***	0.8	1.4	0.6	1.3
32	GRAN SUGAR	4.0	10.3	2.9	6.1	3.4	6.7
33	SUGAR SUBS	***	***	0.2	0.4	0.1	0.2
34	INS COF TEA	2.8	13.9	16.2	41.7	14.1	36.4
37	*FRESH FRUITS	14.2	32.2	39.3	84.8	47.5	105.0
38	*FRESH MEAT	11.1	25.0	27.8	55.6	28.9	45.8
39	*FRESH POULT	7.0	14.7	10.5	19.2	13.2	27.3
40	*FRESH EGGS	11.5	31.0	18.1	37.5	25.0	47.7
41	*FRESH FISH	***	***	3.3	5.6	5.9	9.8
42	*FRESH VEGS	9.4	20.2	30.4	55.3	31.0	61.6
43	*HOMEMADE JAMS	0.0	0.0	19.3	44.8	4.9	11.2
44	*HOMEMADE SOUP	4.7	7.4	18.7	34.5	23.9	35.9
48	SEAS FLAVRS	***	***	0.02	0.04	0.03	0.05

[1]Based on MRCA mean frequency of eating (Exhibit 35) and USDA mean portion size (Exhibit 39).

[2]Based on MRCA 90th percentile frequency of eating (Exhibit 35) and USDA mean portion size (Exhibit 39).

*Consumption not used in GRAS daily intake calculations.

***Insufficient information, but evidence of very limited consumption.

Exhibit 47--Daily Consumption of Infant Formula Products and Baby Foods by Males + Females, 0-23 Months, EATERS ONLY

Food Category		(0-5 Months) Consumption, Grams		(6-11 Months) Consumption, Grams		(12-23 Months) Consumption, Grams	
No.	Name	Mean[1]	High[2]	Mean[1]	High[2]	Mean[1]	High[2]
81	BAKED GOODS	1.6	2.4	3.7	12.1	0.0	0.0
82	CEREALS	15.3	23.5	15.0	30.5	12.0	18.2
83	FORMULAS	402.9	652.8	292.1	609.7	358.7	743.7
84	PROCSD FRUT	82.3	160.1	102.7	239.4	72.7	168.4
85	MEAT PRODS	32.1	52.1	24.6	46.7	21.5	54.0
86	POULTRY	26.8	54.9	33.7	53.7	40.8	59.6
87	EGG PRODS	31.2	67.5	38.7	105.8	29.9	90.7
88	FISH PRODS	***	***	***	***	0.0	0.0
89	PROCSD VEGS	43.7	95.7	49.6	115.2	38.3	104.9
90	PUDDINGS	23.7	47.1	28.0	50.7	28.9	49.2
91	SOUPS	11.2	18.5	25.9	61.2	29.5	70.3
92	MEAT DINNER	6.0	7.5	39.4	96.7	9.2	18.0
93	COMB DINNER	48.0	95.0	85.3	176.8	81.4	180.1

[1]Based on MRCA mean frequency of eating (Exhibit 37) and USDA mean portion size (Exhibit 40).

[2]Based on MRCA 90th percentile frequency of eating (Exhibit 37) and USDA mean portion size (Exhibit 40).

***Insufficient information, but evidence of very limited consumption.

Exhibit 48--Explanatory Notes on Exhibits 42-47 (Food Consumption Data)

Note 1

Consumption data are given for either "total sample" or "eaters only", since the MRCA data were obtained on this basis. The significance of these terms is explained in the discussion section of the report in Chapter X under the heading Daily Intakes (Tables 13-16).

Note 2

Where "***" is given instead of a numerical value, this indicates that there was evidence of very limited consumption of the food in the category indicated, but not enough data were available from MRCA and/or USDA from which to calculate consumption values.

Note 3

Where "0.0" is shown, this indicates that there was no evidence of consumption of the food in either the MRCA census or the USDA survey.

Note 4

The numerical footnotes at the end of each exhibit explain how the mean and high food consumption values were calculated from the MRCA and USDA data.

Note 5

The data in the food categories marked with an asterisk (*) in Exhibits 42, 43, 45, and 46 were not used in subsequent calculations of daily intakes of the GRAS substances, as explained in Exhibit 33A, Note 3 (see also Exhibit 54, Note 9).

Note 6

The data in Exhibits 42-44 (total sample) but not in Exhibits 45-47 (eaters only) may be added across all categories to obtain daily consumption in the total dietary (see reference to discussion section of report in Note 1).

Note 7

See Exhibits 32, 33A-C, 38, and 41 for additional information on the MRCA and USDA data, from which the food consumption values were derived.

Exhibit 49--Explanatory Notes on Table 1 (Reports Submitted on Survey Substances)

Note 1

All data shown are frequency counts on the number of firms reporting data of various types, as indicated in the column headings. The single asterisk (*) indicates that reports were received from only 1, 2, or 3 firms.

Note 2

Reports on nonflavors submitted by respondents in the chewing gum subsurvey are included with the NAS data in Table 1, Parts A and C. Reports on flavoring ingredients and adjuncts submitted by respondents in the chewing gum and highly flavored candy surveys are included with the FEMA data in Table 1, Parts B and D.

Note 3

The following comments apply to Table 1, Parts A and C:

- Reports submitted by respondents in the NAS Pilot Survey are included in the tabulations.
- See Note 6 in Exhibit 52 for an explanation of the conditions under which respondents in the NAS survey were to report "Annual Poundage."
- The data given under "Safety Data" refer to the number of NAS firms who submitted information in response to Question 7b (boxes 55-58) in the NAS questionnaire (Exhibits 7 and 8, page 2).
- See Exhibit 1 for the definition of "User Firm." (Any respondent who checked boxes 16 and/or 17 in Question 2 on page 1 of the NAS questionnaire was considered to be a user firm. If boxes 16 and/or 17 were not checked, the respondent was considered to be a nonuser firm.)
- The data given under "Bibliography" refer to the number of NAS firms (user + nonuser) who supplied a bibliography of published reports (i.e., the respondent checked box 59 in Question 7c).

- The data given under "Manufact Info" refer to the number of NAS firms who supplied an outline of the manufacturing process. The respondents were mostly nonuser firms (i.e., checked box 12 in Question 2 but not 16 and/or 17), although a few respondents were user firms (i.e., checked box 12 plus 16 and/or 17).
- The data given under "Usage Levels" refer to the number of NAS respondents who submitted usage level data. The data submitted by user firms were subsequently used in calculating the daily intakes of those substances on which data were submitted; however, the data submitted by nonuser firms were not employed for this purpose (see explanation in Chapter X in the discussion section of the report).

Note 4

The following comments apply to Table 1, Parts B and D:

- See Note 6 in Exhibit 52 for an explanation of the conditions under which respondents in the FEMA survey were to report "Annual Poundage." [Note: Annual poundage data for 1960 were not obtained in the FEMA survey.]
- The data given under "Usage Levels" refer to the number of FEMA respondents who submitted usage level data. All FEMA respondents who submitted annual poundage data were considered to be user firms; those who did not submit such data, under the conditions specified in the FEMA survey instructions (Exhibit 18, page 9), were considered to be nonuser firms. See comments in Note 3 regarding utilization of the usage level data.

Note 5

All substances listed in NAS Appendix A (Exhibit 9) are included in Table 1, Part A, regardless of whether any reports were submitted by NAS respondents on each substance. A number of the substances in NAS Appendix A were also listed in the FEMA questionnaire; in addition, FEMA respondents submitted reports on a few NAS Appendix A substances that were not listed

in the FEMA questionnaire. Therefore, to determine overall response on any NAS Appendix A substance, the listings in Table 1, Parts B and D, should also be consulted.

Note 6

All substances listed in the FEMA questionnaire (see sample page in Exhibit 19) are included in Table 1, Part B, regardless of whether any reports were submitted by FEMA respondents on each substance. A number of substances listed in the FEMA questionnaire were also listed in NAS Appendix A; in addition, NAS respondents submitted reports on a few FEMA questionnaire substances that were not listed in NAS Appendix A. Therefore, to determine the overall response on any FEMA questionnaire substance, the listings in Table 1, Parts A and C, should also be consulted.

Note 7

Reports of some nature were submitted by NAS respondents on all substances listed in Table 1, Part C. A few substances reported in Part C were also included in the FEMA questionnaire; therefore, to determine the overall response on these substances, the listings in Table 1, Part B, should also be consulted.

Note 8

Reports of some nature were submitted by FEMA respondents on all substances listed in Table 1, Part D. A few substances reported in Part D were also included in NAS Appendix A; therefore, to determine the overall response on these substances, the listings in Table 1, Part A, should also be consulted.

Note 9

The data reported on each substance listed in Table 1, Parts A-D, were correlated and classified for data processing as described in Chapter VII in the discussion section of the report. See also Chapter VII for an explanation of the significance of the letter designations attached to the four-digit numerical FEMA survey numbers for substances reported in Table 1, Part B.

Exhibit 50--Explanatory Notes on Tables 2-5 (Usage Levels)

Note 1

See Chapter VII in the discussion section of the report for an explanation on the classification of the substances into Groups I, II, III, and IV.

Note 2

Substances are listed in Tables 2-5 only if there was evidence of use of the substance by user firms. The NAS survey number is shown if reports were submitted by NAS respondents, and the FEMA number is shown if reports were submitted by FEMA respondents. (The subsurvey reports were included with either the NAS or FEMA data, depending on whether the reports were on nonflavors or flavors, respectively.)

Note 3

See Exhibits 33A-C for an explanation on how the food categories were revised and correlated for use with the MRCA, USDA, and usage level data in computing food consumption and daily intakes.

Note 4

In the food category columns, the designation (R) indicates that the food is a regular food; (B) indicates an infant formula product or baby food category.

Note 5

The usage level data reported by the respondents were transferred from one of the original 28 regular food categories to one of the new categories as necessary. The following examples are representative of the types of transfers made:

- Usage levels for hard candy (when reported by respondents other than those in the hard candy subsurvey) were transferred from original category 16 to new category 30.
- Usage levels for chewing gum (when reported by respondents other than those in the chewing gum subsurvey) were transferred from original categories 15 and 16 to new category 31.

- Usage levels for white granulated sugar were transferred from original category 17 to new category 32.
- Usage levels for sugar substitutes, if reported in one of the original categories, were transferred to new category 31.
- Usage levels reported by NAS respondents for instant coffee and tea were transferred from original category 23 to new category 34. [Note: Usage levels reported by FEMA respondents were not transferred; see Exhibit 54, Note 10.]
- Usage levels for miscellaneous seasonings and flavors, including seasoning blends, meat tenderizers, MSG products, salt substitutes, if reported in one of the original 28 categories, were transferred to new category 48. [Note: In most of the reports, however, the components of the products in category 48 were reported on the basis of the final foods to which the products were added.]

Note 6

Other transfers were made, as necessary, from one of the original 28 categories to another more appropriate original category [e.g., when poultry fat was reported in category 11 (POULTRY) instead of category 04 (FATS OILS); when chocolate syrup was reported in category 17 (CONF FROST) instead of category 19 (SWEET SAUCE); when imitation coffee whitener was reported in category 05 (MILK PRODS) instead of category 28 (IMIT DAIRY); etc.].

Note 7

The data given in the "# of Firms Reporting" columns represent the number of NAS + FEMA user firms who indicated usage of the substance in the particular food category, whether or not actual usage level data were given. Many firms participated in more than one survey; therefore, the number of firms shown for any particular food category may not be an unduplicated total. The single asterisk (*) in these columns indicates that reports were received from only 1, 2, or 3 firms.

Note 8

Usage levels were weighted according to the 1970 annual poundage reported by the respondents. Each usage level reported by each firm on a given substance was multiplied by the ratio, (pounds reported by firm/total pounds reported by all firms); the levels thus weighted were summed to obtain the weighted mean. The overall formula used was: Σ(level x pounds)/(total pounds). In the NAS survey, only about 3% of the reports from user firms contained no 1970 annual poundage information. Reports from these firms were omitted from the weighted mean computations (except when all reports on a given substance were from firms who did not report poundage, in which case the usage levels were used but only a simple mean was computed). By definition, all FEMA respondents who reported annual poundage were user firms, and all of these reports were used in the weighted mean computations. All respondents in the subsurveys were considered to be user firms, and their usage levels were weighted in a manner similar to that used for the other reports.

Note 9

Values of ".00000" in Tables 2-4 indicate usage at levels below 0.00000%; this designation does not imply "zero" or "no use." [Note: Table 5 contains usage level data submitted by NAS respondents on nonflavors as well as data submitted by FEMA respondents on flavoring ingredients. Since the FEMA data were reported originally in terms of p.p.m.'s, their incorporation in this table, after conversion to %, required the use of 10 places to the right of the decimal point.]

Note 10

The series of asterisks (********) in the usage level columns indicates that the substance is used:

- In an intermediate food processing phase in the food category indicated, but the residual levels in the final food product are either negligible or unknown.
- In chewing gum, but the substance is purported not to be extracted or ingested (See Exhibit 20).
- In the food category indicated, but usage levels were not provided by the respondents.

- In the food category indicated, but the levels supplied by the respondent(s) were considered to be reported incorrectly and could not be reconciled (see explanation in the discussion section of the report, Chapters VI and X).

Note 11

Usage levels shown for category 49 (MISC UNCLAS) are for reports on substances used in foods that were not clearly identified by the respondents and that could not be classified into one of the other categories (e.g., reports on "frozen foods", "canned goods", etc.). Review of such reports indicated that, in the majority of cases, it was likely that the substance had already been reported at similar levels by respondents who indicated more specific food categories. Data in category 49 were not used in daily intake calculations.

Note 12

The FEMA questionnaire did not list L- and DL- forms of amino acids separately. Consequently, any reports submitted by FEMA respondents on alanine (FEMA 3251), cystine (FEMA 3286), isoleucine (FEMA 3330), leucine (FEMA 3329), phenylalanine (FEMA 3372), and proline (FEMA 3377) were included with the NAS data on the respective DL-amino acids. [Note: One or more FEMA respondents did, however, submit reports on L-Leucine, which was not listed on the FEMA questionnaire. This new FEMA substance was assigned FEMA survey number 3643, and the data submitted were included with the NAS data on L-leucine, NAS 0106.]

The FEMA questionnaire did not list the various alginate salts separately. Consequently, any reports submitted by FEMA respondents on alginates (FEMA 2015) were included with the NAS data on sodium alginate (NAS 0177).

EXHIBIT 51

Exhibit 51--Explanatory Notes on Tables 6-10 (Technical Effects and Importance Ratings)

Note 1

See Chapter VII in the discussion section of the report for an explanation on the classification of the substances into Groups I, II, III, and IV.

Note 2

Substances are listed in Tables 6-10 only if there was evidence of use of the substance by user firms and if a technical effect or flavor use designation was indicated by the respondent. The NAS survey number is shown if reports were submitted by NAS respondents, and the FEMA number is shown if reports were submitted by FEMA respondents. (The sub-survey reports were included with either the NAS or FEMA data, depending on whether the reports were on nonflavors or flavors, respectively.)

Note 3

In Tables 6 and 7 (substances in Groups I and II, respectively), the numbers and names shown in the "Technical Effect" columns correspond to the listing in NAS Appendix C (Exhibit 12). Two technical effects were added during coding and processing of the questionnaires: effect 31 (masticatory substances used in chewing gum) and effect 40 (nutritive sweetener).

Note 4

The data in Table 8 (Group III substances) are for flavoring ingredients and adjuncts. The technical effects for flavoring adjuncts, and the flavor uses for flavoring ingredients, are given under the column headed "Technical Effect or Flavor Use." The technical effect numbers for flavoring adjuncts are in the series 01-40, corresponding to the effects listed in NAS Appendix C (Exhibit 12). When flavoring ingredients were reported, the "flavor codes" employed were those as described in the FEMA survey instructions (Exhibit 18, pp. 5-7). The flavor codes are as follows:

50	BLENDS	58	FRUT-PULPY	66	VANILLA
51	COCONUT	59	MEAT	67	VEGETABLE
52	CKD-BR-RST	60	MILK-DAIRY	68	FRUIT-MISC
53	FERMENTED	61	MINT-MENTH	69	FLAVR-MISC
54	FLORAL	62	NUT	70	BITTER
55	FRUT-BERRY	63	ROOTS	71	FRUIT-NUTS
56	FRUT-CIT	64	SEASONINGS	72	CHEW GUM
57	FRUT-PIT	65	SPICE-HERB	73	HARD CANDY

The last two flavor codes (72 and 73) were added for use with reports submitted by respondents in the subsurveys on chewing gum and highly flavored (hard) candy, respectively.

Note 5

Table 9 (Group IV substances) contains data for nonflavors as well as for flavoring ingredients and adjuncts. The technical effects or flavor uses for these substances are given under the column headed "Technical Effect or Flavor Use." The technical effects for nonflavors and for flavoring adjuncts are in the series 01-40, corresponding to the effects listed in NAS Appendix C (Exhibit 12). The flavor codes used for flavoring ingredients are the same as those described in Note 4.

Note 6

The data given under the columns headed "# Times Effect Reported" (Tables 6 and 7) and "# Times Effect/Use Reported" (Tables 8 and 9) represent the number of times the NAS + FEMA (and subsurvey) user firms reported the technical effect or flavor use for each substance listed. It should be noted that any firm could have reported any technical effect or flavor use more than one time for any particular substance, depending on the number of different food categories in which the substance is used. The single asterisk (*) in these columns indicates that only 1, 2, or 3 reports were received.

Note 7

NAS respondents rated their technical effects as directed in the NAS survey instructions (Exhibits 5 and 6, page 10), and FEMA respondents rated their technical effects and flavor uses as directed in the FEMA instructions (Exhibit 18, page 7). The ratings for substances in Groups I and II are given in Tables 6 and 7, respectively, under the columns headed

"Importance Ratings, %." The ratings for substances in Groups III and IV are given in Tables 8 and 9, respectively, under the columns headed "Tech Effect/Flavor Use Importance Rating, %." The significance of the A, B, and C ratings is described in the respective survey instructions. The percentage of the respondents reporting each rating is given in the respective columns in Tables 6-9.

Note 8

FEMA respondents reporting on flavoring ingredients indicated the flavor role of each substance as either dominant, modifying, or trace, as directed in the FEMA survey instructions (Exhibit 18, pp. 5 and 6). The data reported by these respondents are shown in Tables 8 and 9 under the columns headed "Flavor Role, %," where the percentage of respondents reporting each flavor role is given.

Note 9

See Note 12 in Exhibit 50 regarding the manner in which data are shown for certain substances that were reported as a group, rather than individually, by FEMA respondents.

Note 10

The listings in Table 10 show each technical effect cited for each substance per individual food category. In this table, all flavor codes in the series 50-73, as reported by FEMA respondents in Tables 8 & 9, have been grouped into regular NAS technical effect number 11 (flavoring agents). The NAS survey number and/or the FEMA survey number is listed when the substance was reported by the NAS and/or FEMA respondents, respectively, for the indicated technical effect in the indicated food category.

Exhibit 52--Explanatory Notes on Table 11, Parts A-D (Annual Poundage)

Note 1

See Chapter VII in the discussion section of the report for an explanation on the classification of the substances into Groups I, II, and III.

Note 2

Substances are listed in these tables only if annual poundage data were reported. The NAS survey number is shown if reports were submitted by NAS respondents, and the FEMA number is shown if reports were submitted by FEMA respondents. (The subsurvey reports were included with either the NAS or FEMA data, depending on whether the reports were on non-flavors or flavors, respectively.)

Note 3

The following points should be noted regarding the data in Table 11, Parts A and B:

- Data given in the columns headed "# Reports to NAS 1960/1970" represent the number of NAS firms reporting poundage for 1960 and 1970, respectively.
- Data given in the 1960 columns under the heading "Poundage Reported to NAS (Matching Reports for Both Years)" represent the total poundage reported for 1960; however, the values given in the 1970 columns are based only on the reports from those NAS respondents who submitted information for both 1960 and 1970. Thus, the 1960-1970 poundage data may be considered to show a trend in usage during the last decade, taking into consideration increases in U.S. population and in food production during that period.
- Data given in the columns headed "# Reports to FEMA" represent the number of firms reporting 1970 poundage to FEMA. [Note: FEMA did not obtain data on 1960 poundage.]

Note 4

The column headings in Table 11, Parts C and D (substances in Group III), are self-explanatory. It should be noted, however, that the data given in the columns headed "# Reports to FEMA" and "# Reports to NAS" represent the number of FEMA and NAS firms, respectively, reporting poundage for 1970 only.

Note 5

The single asterisk (*) shown in the "# of Reports" columns in these tables indicates that reports were received from only 1, 2, or 3 firms.

Note 6

In order to prevent double reporting, respondents were asked to report annual poundage only under certain specified conditions of use, as explained in the NAS survey instructions (Exhibits 5 and 6, pp. 3-5) and in the FEMA survey instructions (Exhibit 18, page 9). These data were therefore reported only on the basis of one or more of the following conditions:

- Sells substance directly to the individual or institutional consumer.
- Uses substance in preparing a premix, blend, or subassembly for sale.
- Adds substance directly to food or uses it in food processing.

Note 7

The NAS questionnaire was designed so that respondents could report either poundage ranges or actual poundage (for 1970 only). Although the FEMA questionnaire permitted respondents to indicate poundage in ranges only, FEMA later made a separate survey to obtain actual poundage data from as many respondents as were willing to provide this information.

Note 8

In those cases in which only poundage ranges were reported, a method was devised to convert the range values into poundage figures, which were then used in computing the total poundage for each year. Within a series of reported ranges, the midpoint poundage value was used for all except the highest range, for which a value one-third into the range was used. If only one range was reported, the one-third value was used.

Note 9

In the NAS survey, if a respondent checked box "H" in Question 3 (indicating >1,000,000 lbs.) but did not indicate the nearest multiple, a value of 1,000,000 lbs. was assigned.

Note 10

In any FEMA reports in which the >25,000 lbs. range was indicated (and actual poundage data were not subsequently reported by the respondents), the reports were counted as 25,000 lbs.

Note 11

See Note 12 in Exhibit 50 regarding the manner in which data are shown for certain substances that were reported as a group, rather than individually, by FEMA respondents.

Note 12

The data reported for nitrogen (NAS 0136) in Table 11, Parts A and B, are in units of cubic feet rather than pounds.

Exhibit 53--Explanatory Notes on Table 12 (Year of First Use)

Note 1

See Chapter VII in the discussion section of the report for an explanation on the classification of the substances into Groups I, II, and III.

Note 2

Data from NAS nonuser firms as well as user firms are incorporated in this table. [Note: Table 1 is the only other table in which data from nonuser firms were incorporated.]

Note 3

This table contains data from NAS respondents only, since the question on year of first use was not included in the FEMA questionnaire.

Note 4

The column headings in this table are self-explanatory. The following points should be noted, however:

- The data given in the eight columns under the heading "Distribution of Companies by Year Reported" represent the number of user firms reporting use of the substance plus the number of nonuser firms reporting sale of the substance during the period indicated.
- The single asterisk (*) indicates that reports were received from only 1, 2, or 3 firms.

Exhibit 54--Explanatory Notes on Table 13 (Possible Daily Intakes, Total Dietary--Total Sample)

Note 1

Intake data in both parts of this table are based on food consumption by "total sample," as explained in the discussion section of the report in Chapter X under the heading Daily Intakes (Tables 13-16).

Note 2

See Chapter VII in the discussion section of the report for an explanation on the classification of the substances into Groups I, II, III, and IV.

Note 3

Substances included in this table are the same as those on which usage level data were reported in Table 2 (Group I substances) and Table 3 (Group II substances). In Table 13, Part A, only the NAS survey number is indicated, although there may have been reports on use of the substance by FEMA respondents (as indicated by the survey numbers shown in Table 2; see Exhibit 50, Note 2). In Table 13, Part B, only the FEMA survey number is indicated, although there may have been reports on use of the substance by NAS respondents (as indicated by the survey numbers shown in Table 4; see Exhibit 50, Note 2).

Note 4

See Exhibits 33A-C for an explanation on how the food categories were revised and correlated for use with the MRCA, USDA, and usage level data in computing food consumption and daily intakes. Further explanatory notes on the food consumption data and usage level data are provided in Exhibits 48 and 50, respectively.

Note 5

In the food category columns, the designation (R) indicates that the food is a regular food; (B) indicates an infant formula product or baby food category.

Note 6

See Note 7 in Exhibit 50 for an explanation of the data given in the "# of Firms (Reporting)" columns. In addition, it should be noted that the figures given for firms reporting in "All Categories" are unduplicated totals.

Note 7

The possible daily intakes (total sample) in Table 13, Part A (substances in Groups I and II), were calculated as follows for the respective age group indicated in each food category:

Regular Foods (R), Ages 0-5, 6-11, & 12-23 Months

- Average--Usual Use (Table 2) x Mean Consumption (Exhibit 43) x F_1
- High A--Usual Use (Table 2) x High Consumption (Exhibit 43) x F_1
- High B--Maximum Use (Table 2) x Mean Consumption (Exhibit 43) x F_1

Regular Foods (R), Ages 2-65+ Years

- Average--Usual Use (Table 2) x Mean Consumption (Exhibit 42) x F_1
- High A--Usual Use (Table 2) x High Consumption (Exhibit 42) x F_1
- High B--Maximum Use (Table 2) x Mean Consumption (Exhibit 42) x F_1

Infant Formula Products and Baby Foods (B), Ages 0-5, 6-11 & 12-23 Months

- Average--Usual Use (Table 3) x Mean Consumption (Exhibit 44) x F_1
- High A--Usual Use (Table 3) x High Consumption (Exhibit 44) x F_1
- High B--Maximum Use (Table 3) x Mean Consumption (Exhibit 44) x F_1

[Note: The factor, F_1, is 10. It converts % use and grams food consumption into mg. GRAS intake.]

Note 8

The possible daily intakes (total sample) in Table 13, Part B (substances in Group III), were calculated as follows for the respective age group in each food category:

Regular Foods (R), Ages 0-5, 6-11, & 12-23 Months

- Average--Usual Use (Table 4) x Mean Consumption (Exhibit 43) x F_2
- High A--Usual Use (Table 4) x High Consumption (Exhibit 43) x F_2
- High B--Maximum Use (Table 4) x Mean Consumption (Exhibit 43) x F_2

Regular Foods (R), Ages 2-65+ Years

- Average--Usual Use (Table 4) x Mean Consumption (Exhibit 42) x F_2
- High A--Usual Use (Table 4) x High Consumption (Exhibit 42) x F_2
- High B--Maximum Use (Table 4) x Mean Consumption (Exhibit 42) x F_2

[Note: The factor, F_2, is 0.001. It converts p.p.m. use and grams food consumption into mg. GRAS intake.]

Note 9

Reports on the use of GRAS substances in processed milk products as well as in fresh milk were all placed in revised category 05 (MILK PRODS), although the daily intakes of substances used in all of these foods were based on food consumption data for processed milk products only. This was done because (a) only a limited number of closely regulated substances are permitted in fresh milk, and (b) the consumption of fresh milk is several times greater than that of processed milk products. To have used the food consumption values for fresh milk + processed milk products in calculating the intakes of substances used in processed milk products would have greatly overstated the intakes of the GRAS substances from consumption in these products. Conversely, however, it should be noted that the estimates of the intakes of substances added to fresh milk (principally Vitamin A and the D vitamins) are understated to the same degree.

Note 10

As indicated in Exhibit 50, Note 5, any reports by FEMA respondents on the use of GRAS substances in instant coffee and tea were included in category 23 (BEV TYPE I) instead of category 34 (INS COF TEA). For the 2-65+ years age group, the daily intakes calculated on the basis of category 23 are approximately the same as would be those calculated on the basis of category 34, since the consumption values in the two categories are approximately the same. Intakes of persons 0-23 months of age, however, are somewhat higher when based on category 23.

Note 11

See Note 12 in Exhibit 50 regarding the manner in which data are shown for certain substances that were reported as a group, rather than individually, by FEMA respondents.

Exhibit 55--Explanatory Notes on Tables 14 and 15 (Potential Daily Intakes per Food Category-Eaters Only)

Note 1

Intakes in Table 14, Parts A and B (substances in Groups I, II, and III), and in Table 15 (substances in Group IV) are based on food consumption by "eaters only," as explained in the discussion section of the report in Chapter X under the heading Daily Intakes (Tables 13-16).

Note 2

See explanations pertaining to these tables in the discussion section of the report in Chapter X regarding the listing of intakes by food category rather than by substance.

Note 3

Notes 2, 4-6, 9, and 10 in Exhibit 54 apply to the corresponding data in Tables 14 and 15.

Note 4

Note 3 in Exhibit 54, in discussing Table 13, Parts A and B, applies also to Table 14, Parts A and B, respectively.

Note 5

The NAS and/or FEMA survey numbers are shown for substances in Table 15 each time a food category is listed. When both survey numbers are shown for any substance, however, this does not necessarily mean that reports were received from both NAS and FEMA respondents in all food categories listed.

Note 6

The potential daily intakes (eaters only) per individual food category in Table 14, Part A (substances in Groups I and II), were calculated as follows:

Regular Foods (R), Ages 0-5, 6-11, & 12-23 Months

- Average--Usual Use (Table 2) x Mean Consumption (Exhibit 46) x F_1
- High A--Usual Use (Table 2) x High Consumption (Exhibit 46) x F_1
- High B--Maximum Use (Table 2) x Mean Consumption (Exhibit 46) x F_1
- Very High--Maximum Use (Table 2) x High Consumption (Exhibit 46) x F_1

Regular Foods (R), Ages 2-65+ Years

- Average--Usual Use (Table 2) x Mean Consumption (Exhibit 45) x F_1
- High A--Usual Use (Table 2) x High Consumption (Exhibit 45) x F_1
- High B--Maximum Use (Table 2) x Mean Consumption (Exhibit 45) x F_1
- Very High--Maximum Use (Table 2) x High Consumption (Exhibit 45) x F_1

Infant Formula Products and Baby Foods (B), Ages 0-5, 6-11, & 12-23 Months

- Average--Usual Use (Table 3) x Mean Consumption (Exhibit 47) x F_1
- High A--Usual Use (Table 3) x High Consumption (Exhibit 47) x F_1
- High B--Maximum Use (Table 3) x Mean Consumption (Exhibit 47) x F_1
- Very High--Maximum Use (Table 2) x High Consumption (Exhibit 47) x F_1

[Note: The factor, F_1, is 10. It converts % use and grams food consumption into mg. GRAS intake.]

Note 7

The potential daily intakes (eaters only) per individual food category in Table 14, Part B (substances in Group III), were calculated as follows:

Regular Foods (R), Ages 0-5, 6-11, & 12-23 Months

- Average--Usual Use (Table 4) x Mean Consumption (Exhibit 46) x F_2
- High A--Usual Use (Table 4) x High Consumption (Exhibit 46) x F_2
- High B--Maximum Use (Table 4) x Mean Consumption (Exhibit 46) x F_2
- Very High--Maximum Use (Table 4) x High Consumption (Exhibit 46) x F_2

Regular Foods (R), Ages 2-65+ Years)

- Average--Usual Use (Table 4) x Mean Consumption (Exhibit 45) x F_2
- High A--Usual Use (Table 4) x High Consumption (Exhibit 45) x F_2
- High B--Maximum Use (Table 4) x Mean Consumption (Exhibit 45) x F_2
- Very High--Maximum Use (Table 4) x High Consumption (Exhibit 45) x F_2

[Note: The factor, F_2, is 0.001. It converts p.p.m. use and grams food consumption into mg. GRAS intake.]

Note 8

The potential daily intakes (eaters only) per individual food category in Table 15 (substances in Group IV) were calculated as follows:

Regular Foods (R), Ages 0-5, 6-11, & 12-23 Months

- Average--Usual Use (Table 5) x Mean Consumption (Exhibit 46) x F_1
- High A--Usual Use (Table 5) x High Consumption (Exhibit 46) x F_1
- High B--Maximum Use (Table 5) x Mean Consumption (Exhibit 46) x F_1
- Very High--Maximum Use (Table 5) x High Consumption (Exhibit 46) x F_1

Regular Foods (R), Ages 2-65+ Years

- Average--Usual Use (Table 5) x Mean Consumption (Exhibit 45) x F_1
- High A--Usual Use (Table 5) x High Consumption (Exhibit 45) x F_1
- High B--Maximum Use (Table 5) x Mean Consumption (Exhibit 45) x F_1
- Very High--Maximum Use (Table 5) x High Consumption (Exhibit 45) x F_1

Infant Formula Products and Baby Foods (B), Ages 0-5, 6-11, & 12-23 Months

- Average--Usual Use (Table 5) x Mean Consumption (Exhibit 47) x F_1
- High A--Usual Use (Table 5) x High Consumption (Exhibit 47) x F_1
- High B--Maximum Use (Table 5) x Mean Consumption (Exhibit 47) x F_1
- Very High--Maximum Use (Table 5) x High Consumption (Exhibit 47) x F_1

[Note: The factor, F_1, is 10. It converts % use and grams food consumption into mg. GRAS intake.]

Note 9

See Note 12 in Exhibit 50 regarding the manner in which data are shown for certain substances that were reported as a group, rather than individually, by FEMA respondents.

EXHIBIT 56

Exhibit 56--Explanatory Notes on Table 16 (Substances Ranked by Possible Average Daily Intakes)

Note 1

All substances in Table 13, Parts A and B (i.e., substances in Groups I, II, and III), are included in Parts A-D of this table for ages 0-5 months, 6-11 months, 12-23 months, and 2-65+ years, respectively.

Note 2

The substances are ranked by average daily intake in the total dietary (total intake for all food categories combined).

EXHIBIT 57

CONFIDENTIAL

GRAS SUBSTANCES REPORTED TO BE EMPLOYED IN THE BREWING OF MALT BEVERAGES IN THE UNITED STATES

March, 1972

CONTENTS

I. GRAS SUBSTANCES REPORTED TO BE EMPLOYED TO TREAT BREWING WATER

(1) Materials employed for this function are not properly classifiable as brewing adjuncts, but represent the treatment of available water supplies to render them suitable for brewing. The functions served are as flocculants and coagulants to precipitate undesirable material in the water supply, to adjust pH, to adjust the hardness of the water supply, to adjust its alkalinity, or to neutralize its acidity.

Where the listed substances are employed, they are not employed in large quantities. Paramountly, no single brewer uses all of the listed water treating substances, but only those few required to deal with the particular local water supply. In many instances, these same substances are used in municipal or local water supplies upon which the brewery draws. Lastly, many of the brewing water ingredients used typically dissociate during the course of the brewing process, do not end up in the finished product, and some when chemically recombined during the brewing process are precipitated out.

The following is a list of GRAS substances that have been reported to be employed when necessary by some brewers to render water suitable for brewing:

Aluminum Ammonium Sulfate
(Ammonium Alum)

Aluminum Potassium Sulfate
(Potassium Alum)

Aluminum Sodium Sulfate
(Sodium Alum)

Ammonium Chloride

Ammonium Phosphates (dibasic)

Calcium Carbonate

Calcium Chloride

Calcium Hydroxide

Calcium Phosphate

Calcium Sulfate (Gypsum)

Chlorine

Citric Acid

Lactic Acid

Phosphoric Acid

Potassium Chloride

Sodium Bicarbonate

Sodium Carbonate (Soda Ash)

Sodium Chloride

Sodium Hexametaphosphate

Sodium Hydroxide

Sodium Phosphates
(mono-, di-, and tri-)

Sodium Sulfate

Sulfuric Acid

II. GRAS SUBSTANCES REPORTED TO BE EMPLOYED IN BREWING AS BASIC INGREDIENTS

Malt beverages are essentially brewed from cereal grains, malt and hops. Some brewers may employ derivatives of these basic ingredients -- corn syrups, malt syrups, and sugars -- in the brewing process.

In whatever form these basic ingredients may be employed, however, they are so fundamentally altered in the brewing process, that the basic ingredients cannot properly be said to remain in any identifiable form in the final malt beverage product.

III. GRAS ADJUNCTS REPORTED TO BE EMPLOYED IN BREWING

PRODUCTION OF MALT BEVERAGES
IN THE UNITED STATES 1960-1970

(In Barrels)

1960	93,415,363
1961	95,030,031
1962	96,831,989
1963	100,631,563
1964	105,897,968
1965	108,221,725
1966	113,037,193
1967	116,550,659
1968	122,407,762
1969	127,311,042
1970	133,090,660

EXHIBIT 58

Exhibit 58--Comparison of Intakes

Substance	# Firms*	# Cats.*	NAS # 1 Intake, mg.*	NAS # 2 Intake, mg.†	Ratio # 1/# 2	FAO-WHO Intake, mg.§	Ratio FAO-WHO Intake/ NAS # 1	Ratio FAO-WHO Intake/ NAS # 2
Acacia	125	23	2470	104	24	No Limit	---	---
Adipic Acid	17	13	473	51	9.3	350(c)	0.74	6.9
Agar-agar	21	7	338	2.1	160	3500	10	1665
Anethole	55	11	65	1.4	47	87.5(c)	1.3	62
Benzoic Acid	21	12	34	0.84	40	350 700(c)	10 21	417 834
BHA	100	25	13	5.5	2.3	35 140(c)	2.8 11	6.4 26
BHT	78	22	14	6.0	2.3	35 140(c)	2.6 10	5.8 23
Calcium Acetate	7	5	40	0.5	75	No Limit	---	---
Calcium Propionate	32	1	146	33	4.4	870 1760(c)	6.0 12	27 53
Caramel	202	27	5837	372	16	7000(t)	1.2	19
Carotene	39	13	37	0.43	86	175 350(c)	4.2 9.4	407 814
Chondrus Extract	33	15	367	13	29	3500	9.5	276
Cinnamaldehyde	64	11	73	4.0	18	87.5(c)	1.2	22
Citral	73	12	25	0.56	45	70(c)	2.8	125
Citric Acid	247	32	3125	359	8.7	No Limit	---	---
Ethyl Acetate	82	11	31	4.5	6.9	1750	56	389
Ethyl Butyrate	84	10	20	2.8	7.0	1050	53	375
Ethyl Heptanoate	45	9	6.7	0.09	74	70(c)	11	770
Ethyl Laurate	18	8	4.3	0.006	720	70(c)	16	11700
Ethyl Nonanoate	36	8	4.1	0.052	79	70(c)	17	1340
Ethyl Vanillin	99	15	71	2.7	26	700	10	260
Eugenol	51	11	7.0	0.6	12	350(c)	50	583
Geranyl Acetate	44	10	3.1	0.04	78	350(c)	113	8750
Guar Gum	54	20	1932	44	45	8750(t)	4.5	200
α-Ionone	53	8	0.96	0.12	8.0	7(c)	7.3	58
β-Ionone	38	8	0.96	0.038	25	7(c)	7.3	184
Lactic Acid	82	21	924	15	61	7000(c)	7.6	460
Linalool	51	10	3.9	0.16	24	17.5(c)	4.5	109
Linalyl Acetate	49	11	3.3	0.12	27	17.5(c)	5.3	146
Malic Acid	74	20	746	42	18	7000(c)	9.4	168
Mannitol	12	7	2078	18	119	3500 10500	1.7 5.1	200 600
Methylcellulose	18	14	800	1.2	677	2100	2.6	1750
Methylparaben	11	11	222	0.09	2460	140 490(c)	0.63 2.2	1750 5450
Mono-Diglycerides	74	29	7075	727	9.8	8750	1.2	12

[See footnotes on next page.]

Substance	# Firms*	# Cats.*	NAS # 1 Intake, mg.*	NAS # 2 Intake, mg.†	Ratio # 1/# 2	FAO-WHO Intake, mg.§	Ratio FAO-WHO Intake/ NAS # 1	Ratio FAO-WHO Intake/ NAS # 2
γ-Nonalactone	40	9	5.5	0.12	46	87.5(c)	16	730
Nonanal	31	8	1.2	0.005	240	7(c)	5.8	1400
Octanal	23	9	1.5	0.005	300	7(c)	4.7	1400
Piperonal	62	10	3.0	0.22	14	1750(c)	577	7950
Potassium Acid Tartrate	24	5	481	5.9	82	525 1750(c)	1.1 3.6	89 297
Potassium Citrate	20	10	279	5.7	49	No Limit	—	—
Potassium Metabisulfite	22	2	2.8	2.5	1.1	80 340(c)	29 121	32 138
Potassium Sorbate	83	22	412	11	38	1170 2350(c)	2.8 5.7	108 217
Propylene Glycol	141	26	349	57	6.1	1750 3500(c)	5.0 10	31 61
Propyl Gallate	23	16	3.9	1.4	2.8	14 35(c)	3.6 9.0	10 26
Propylparaben	16	14	238	0.04	5900	140 490(c)	0.6 2.1	3500 12000
Sodium Alginate	34	8	1635	6.6	250	3500	2.1	530
Sodium Benzoate	129	23	328	33	9.9	413 826(c)	1.3 2.5	13 25
Sodium CMC	45	21	781	37	21	2100	2.7	56
Sodium Metabisulfite	16	6	116	1.8	63	68 293(c)	0.59 2.5	38 162
Sorbic Acid	28	15	183	9.0	20	875 1750(c)	4.7 9.5	97 193
Tartaric Acid	49	17	1703	5.8	292	420 1400(c)	0.25 0.82	73 243
γ-Undecalactone	54	9	2.1	0.14	15	87.5(c)	41	625
Vanillin	121	16	39	11	3.5	700	18	63

*Values from Table 13, Parts A & B. Intakes are those calculated from usage levels and food consumption data. # Firms = unduplicated total number of firms reporting in all categories; # Cats. = number of regular food categories in which the substance is used.

†Per capita intakes calculated from annual poundage data (based on 60% reportage by respondents):

$$\text{mg./person/day} = \frac{\text{pounds}}{\text{year}} \times \frac{1}{0.60} \times \frac{454 \text{ g.}}{\text{pound}} \times \frac{1000 \text{ mg.}}{\text{g.}} \times \frac{1 \text{ year}}{365 \text{ days}} \times \frac{1}{200{,}000{,}000 \text{ pop.}}$$

$$= \text{approx.} \frac{\text{pounds}}{\text{year}} \times 10^{-5}.$$

§Based on FAO-WHO acceptable daily intakes (ADI's, in mg./kg.), assuming intake by 70 kg. person. No Limit = intake not limited except by good manufacturing practice; c = conditional intake; t = temporary intake. Values without these designations are unconditional intakes. Note: ADI's and intakes for calcium propionate are based on propionic acid content; potassium acid tartrate on tartaric acid; potassium sorbate on sorbic acid; potassium and sodium metabisulfites on SO_2; and sodium benzoate on benzoic acid.